

Optional Kits available through your Distributor:

Pinball Location Maintenance Standard Kit (for 24I Pinball)502-6002-A7

Standard Kit includes : 8 oz. Novus Wax #2 Fine (Red) (675-0003-01), Cloth, Rubber Rings (used above playfield), Bulbs (Bulb quantities vary and is limited to 25 per type), Fuses (1/per type) and 4 Pinballs. **Note:** Quanties, sizes and contents subject to change without notice.

Pinball Location Maintenance Deluxe Kit (for 24 Pinball) 502-6003-A7

Deluxe Kit includes : Pinball Location Maintenance Standard Kit as described above plus a quantity of Flipper Rebuild Kits. **Note:** Quantity varies which equals the same quantity of flippers used in this game.

▲ THIS GAME KIT INCLUDES (2) FLIPPER REBUILD KITS ▲

Plastics*Kit (for 24 Pinball) 803-5000-A7

Plastics Kit includes: Plastic Sets (830-6079-XX)

Decals*Kit (for 24 Pinball) 802-5000-A7

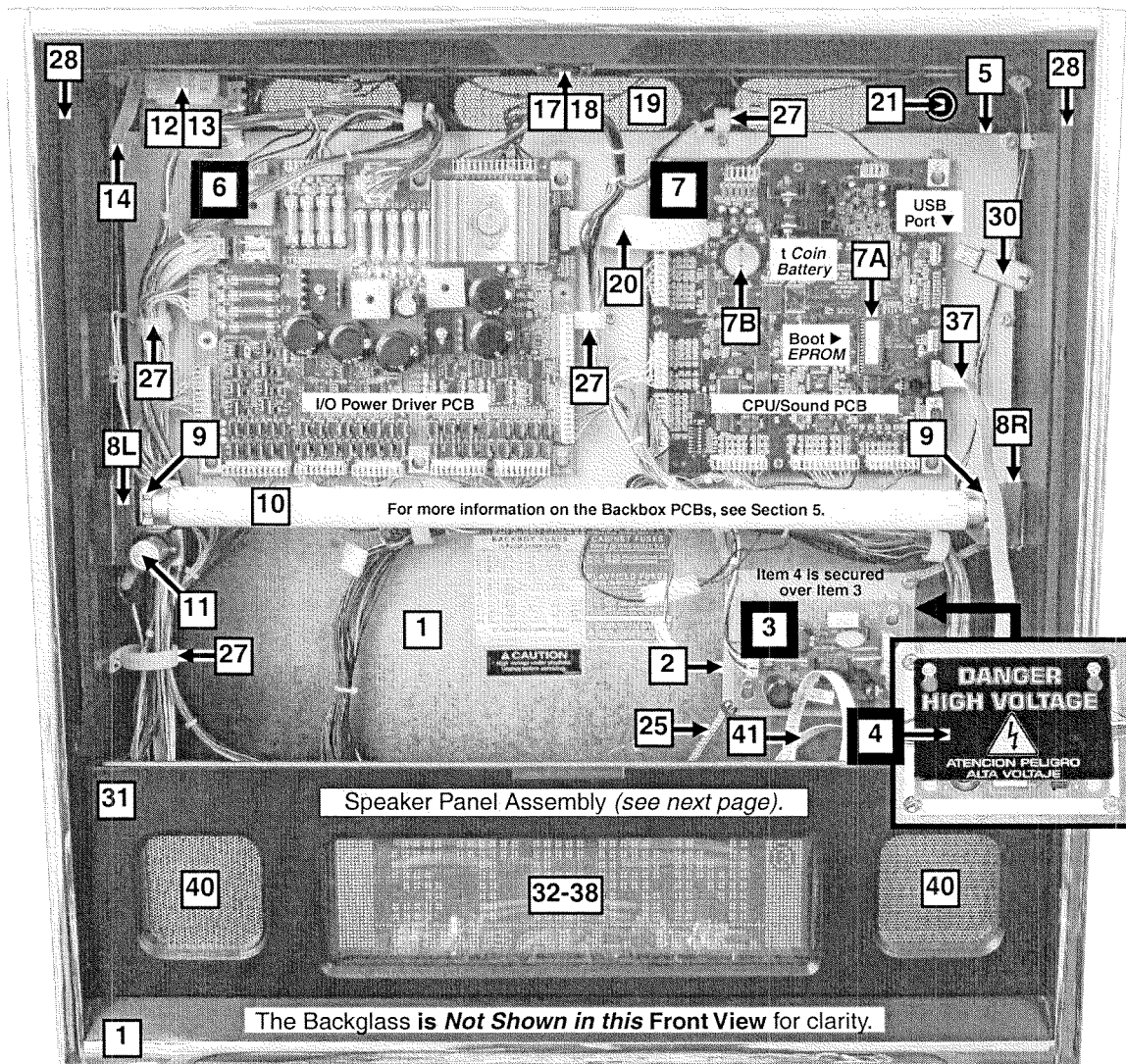
Decals Kit includes: Decal Set (820-6417-XX)

Mylar*Kit (for 24 Pinball) 802-5001-A7

Mylar Kit includes: Ball Drop (Square) (820-5815-00), Pop Protector (820-6418-00)

***Attention:** No individual Plastic or Decal can be ordered separately, unless noted otherwise. Plastics & Decals are subject to change without notice during and / or after production. Key Fobs subject to availability and may or may not be included in the plastic set. All designs, shapes & pieces used subject to change without notice. Kit contents subject to change. Service Bulletin(s) will announce any critical changes, if warranted. The last 2-digits shown on plastics or decals are for reference only.

TOURNAMENT PINBALL

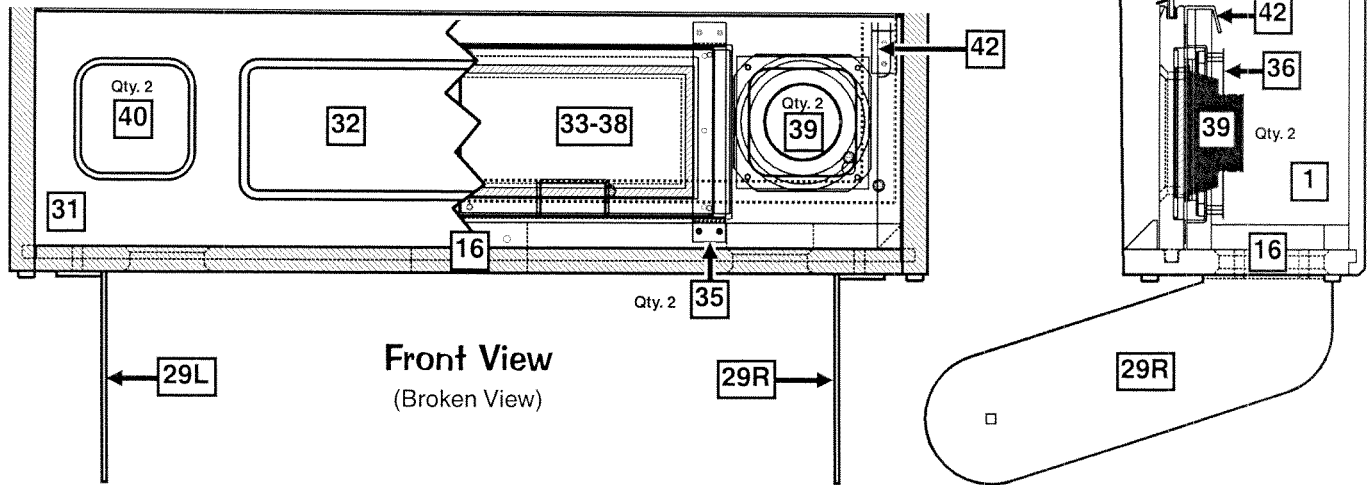


Parts Identification

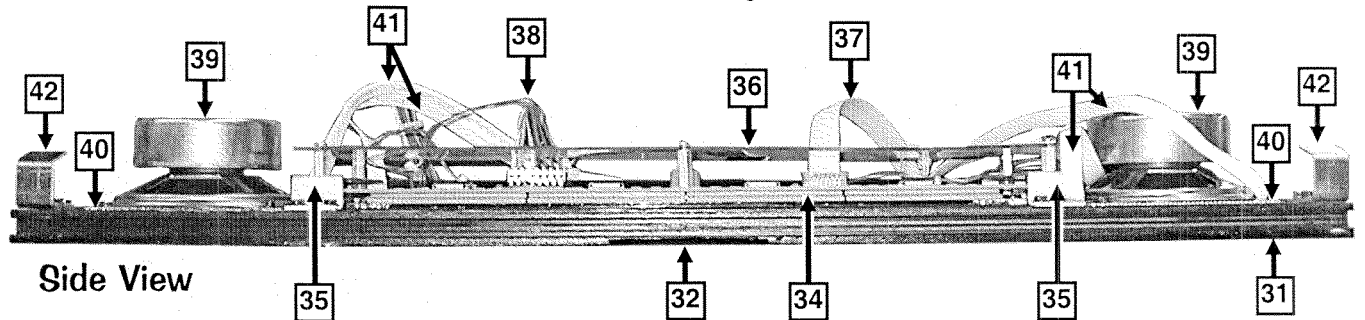
Nr.	BACKBOX PARTS	QTY.	SPI PART Nr.	Nr.	BACKBOX PARTS	QTY.	SPI PART Nr.
1	Backbox 24™ (No Parts)	1	525-5631-17-A7	11	Starter - Fluorescent (FS2 Light)	1	165-5011-01
Item 1 Note: Chrome T-Molding is installed and cannot be ordered separately. Fuse Description (820-6384-00) and High Voltage Caution (uL) (820-6082-01 & -02) Decals.					Starter Base (with leads) [on Item 8L]	1	077-5213-00
2	PCB Metal Mounting Plate [Display]	1	535-9769-00	Item 11 is secured to Item 8L by: #4-40 X 1/2" PPH MS (Sems) Zc. (Qty. 2) (237-5813-00)			
3	Display Power Supply PCB	1	520-5138-00	12	Ballast Mounting Plate	1	535-8657-00
Item 3 is secured to @ bottom by: #8-32 X 3/8" SHWH Swg. (Zinc) (Qty. 2) (237-5975-00)				13	Ballast CU452-W 1/2" Core 120v 60 Hz 13W	1	010-5015-00
4	Plastic Cover [DANGER HIGH VOLTAGE]	1	830-6053-00	Items 12 & 13 are secured to Item 1 by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2) (234-5101-00)			
Items 3 & 4 are secured to @ top by: 1-1/4" X 3/8" Plastic Spacer Gray (Qty. 2) (254-5000-05) and #8-32 X 1-3/4" SHWH Ser. (Zinc) (Qty. 2) (237-5975-28)				>>> CAUTION - VERY HOT" Decal (820-6266-00) EU / UK Only : Ballast, 5/8" Core 50/60 Hz (010-5015-01)			
5	PCB Metal Mounting Plate [I/O+CPU]	1	535-9664-00	14	Ground Strap (5")	1	600-5006-05
Items 2 & 5 are secured to Item 1 by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/hole) (234-5101-00) and #10 Washer 7/32" I.D. X .5" O.D. X 1/16" Thick (Qty. 1/hole) (242-5003-00)				15*	Roto Lock Male (on Cabinet)	1	355-5006-01
Note: Where a Wire Clamp (Item 27) is mounted, a #10 Washer is not required.				16	Roto Lock Female (R2-0002-02)	1	355-5006-02
6	I/O Power Driver PCB [S.A.M. Sys.]	1	520-5249-00	Item 16 is secured by: #10-24 X 1-3/4" CBSN (231-5022-00), #10-24 Keps Nut (Qty. 2) (240-5207-00), #10-24 X 2" CBSN (231-5045-00) and #10 Washer 7/32" I.D. X .5" O.D. X 1/16" (Qty. 5) (242-5003-00); See opposite next page.			
7	CPU/Sound PCB [S.A.M. System]	1	520-5246-00	17	Lock Mounting Plate	1	535-0072-00
7A: 8MB EPROM #M27C801-100F1 (960-5016-00) Ordering Note: Programmed EPROM (965-B00T-SAM) 7B: Coin Cell Battery (CR2430 3V) (000-0644-01) For USB Memory Stick Information, see Item 30 on the next page.				18	Lock 5/8" Barrel, 3/4"ø, 1.5" Flat Cam	1	355-5055-00
Items 6 & 7 are secured to Item 5 by: #8-32 X 3/8" SHWH Swage (Zinc) (Qty. 10) (237-5975-00) and 1/4" Slf. Rtn. Spacer White (Qty. 5 [I/O] / Qty. 4 [CPU]) (254-5007-05)				Items 17 & 18 are secured by: #8 X 1/2" TP Torx T20 Black (Qty. 2) (237-6173-05)			
8L	Fluorescent Light Bracket (Left Style)	1	535-7739-00	19	Back Vent Grill 2-1/2" X 18"	1	545-5072-02
8R	Fluorescent Light Brckt. (Right Style)	1	535-7739-01	20	Ribbon Cable, 20-Pin (3.5")	1	036-5000-350
Items 8L & 8R are secured to Item 1 by: #10-24 X 1-1/4" Carriage Bolt Square Neck (Qty. 2/per) (231-5012-00), #10-24 Keps Nut (Qty. 2/per) (240-5207-00) and 3/4" X 3" Reinforced Strapping Tape (Qty. 1, sold in 12" length only) (626-5040-00)				Item 20 connects the I/O Pwr. Dvr. PCB to the CPU/Sound PCB; For 14-Pin see next page.			
9	Fluorescent Lamp Holder (Socket)	2	077-5214-01	21	Button Hole Plug (Blk) (Happ #52-6214-00)	1	500-6566-00
Item 9 is secured to Items 8L and 8R by: #6-32 X 5/8" PPH MS (Sems) Zinc (Qty. 1/per) (232-5203-00) Lock-In Fluor. Bulb with Yellow Socket Clip (Qty. 1/per) (545-6271-00)				Item 21 plugs the Access Hole required if using optional BETArite Sign or Data cables.			
10	Fluorescent Tube 24" (F20T9CW)	1	165-5061-00	22	Header Sign TOURNAMENT PINBALL	1	545-6133-00
				23	Friction Hinge (Black) behind ▲▼	2	390-5053-00
				24	Block / Sign & Hinge Stop (Black)	2	545-6174-00
				Item 22 is sandwiched between Items 23 & 24 through 2 holes on each side. Item 23 is secured to Item 1 by: #8-32 X 3/8" PPH MS Ext. Sems (Zinc) (Qty. 2/per) (232-5301-00) and Item 24 to Items 22-23 by: #8 X 5/8" PPH AB Black (Qty. 2/per) (232-5101-01)			

PARTS TABLE & VIEWS CONTINUED ON THE NEXT PAGE. ►

Backbox [S.A.M. System] - Parts



Speaker Panel [S.A.M. System] - Parts



Nr.	BACKBOX PARTS	QTY.	SPI PART Nr.	Nr.	SPEAKER PANEL PARTS	QTY.	SPI PART Nr.
PARTS TABLE & VIEWS CONTINUED FROM THE PREVIOUS PAGE.							
25	Braided Wire (1-1/2 Feet)	1	600-5001-00	31	Speaker Panel (Black Wood)	1	525-5515-00
Item 25 is secured by: Staple 5/16" (Qty. 23) (631-5000-00)				32	Plastic Shield (Display Front Cover)	1	545-5884-00
26*	Zip Cable Tie (Screw Down Style)	5	040-5005-00	Item 33 is secured to inside Item 31 by: #6 X 3/8" SHWH AB (Zinc) (Qty. 8) (234-5000-00)			
Item 26 is secured @ inside bot. by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/per) (234-5101-00)				33*	Foam 3/16" Thick X 1/4" Wide X 12"	6	626-5026-00
27	Clamps [Multiple Sizes]	32	040-5000-XX	Above Item 33 is self-adhesive. Located between Items 32-34. Sold in 12" Lengths only.			
Item 27 secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/per) (234-5101-00) For the following sizes, replace -XX with: .1/4" Double = -23 (Qty. 5); 1/2" Single = -06 (Qty. 3); 3/4" Single = -08 (Qty. 4); 1" Single = -09 (Qty. 1); 1-1/4" Double = -30 (Qty. 1)				34	// EURO ONLY RoHS // 128 X 32 DM CES PCB	1	520-5052-05
28	Foam 3/16" Thick X 1/4" Wide X 12"	3	626-5026-00	Item 34 is secured to Item 35 by (at corners): 3/16" X 3/8" Spacer Gray (Qty. 4) (254-5000-18) and #6-32 X 1/2" SHWH Swage (Serr) Zinc (Qty. 4) (237-5976-03)			
Above Item 28 is self-adhesive. 17.5" strip on each side. Sold in 12" Lengths only.				35	Dot Matrix Display Mounting Bracket	2	535-8368-01
29L	Pivot Hinge (Left Style)	1	535-7999-00	Item 35 is secured to Item 31 by: #8 X 1/2" SHWH AB (Zinc) (Qty. 4/per) (234-5101-00)			
29R	Pivot Hinge (Right Style)	1	535-7999-01	36	Plastic Shield (Display Back Cover)	1	830-6040-00
Items 29L-29R are secured to Backbox by: 1/4"-20 X 1-1/4" C.B. Sq. Neck (Qty. 4) (231-5003-00) and 1/4"-20 Flange Nut (Qty. 4) (240-5300-00)				Item 36 is secured to Item 34 by: 1/2" X 1/4" Hex Spacer #6-32 Tap (Qty. 4) (254-5008-03), 3/4" X 1/4" Hex Spacer #6-32 Tap (Qty. 2) (254-5008-04), #6-32 X 1/4" PPH MS (Sems) Zinc (Qty. 2) (232-5200-00) and #6-32 X 3/8" PPH (Qty. 6) (232-5201-00)			
Items 29L-29R are secured to Cabinet by: Spacer Hex Nut 1/2" O.D. - 1/4-20 X 1/2" TD (Black) (Qty. 1/per) (254-5042-00), Nylon Spacer (Black) (Qty. 1/per) (242-5084-00), 1/4-20 X 1/2" Carriage Bolt Square Neck (Black) (Qty. 1/per) (231-5072-00) and Washer 1" O.D. X 1/2" I.D. X 1/16" (Black) (Qty. 1/per side, only if required) (242-5087-00)				37	Ribbon Cable, 14-Pin (33")	1	036-5260-33
30*	Memory Stick USB 1.1+ [Generic] 64MB	1	970-0064-00	// EURO ONLY RoHS // LED Ribbon Cable Filter PCB			
	Memory Stick USB 1.1+ [Generic] 128MB	1	970-0128-00	Item 37 (14-Pin) connects the 128 X 32 Dot Matrix Display PCB to the CPU/Sound PCB.			
Item 30 was not included with your game. Read the inside cover or go on-line for more info. To order with the latest game code copied onto it, add -A3 to the Part Nr. (970-0128-00-A3). File(s) can be downloaded from our website (Files are 25MB or larger, DSL or Fast Modem recommended). Not all manufacturers of Memory Sticks are compatible with our system. Test it out, if it doesn't work properly, return your purchase and order the memory stick through your local pinball distributor (Stern Pinball Memory Sticks guaranteed compatible).				38	Display Cable (Wiring Harness)	1	036-5454-01
(ASM. REF. 505-6002-A3-A3, Items 1-42 Only, [29-30 not included in assembly])				// EURO ONLY RoHS // LED Display Adapter Harness			
				39	Speaker (Shld.) 4" 8Ω #MG ELE 4060SH	2	031-5004-02
				40	Speaker Grill (Chrome w/no Artwork)	2	535-8081-04
				Items 39-40 are secured by: #8 X 1/2" SHWH AB (Black) (Qty. 4/per) (234-5101-01)			
				41	Ground Strap (25") [2 per : Items 35 & 39]	4	600-5006-25
				42	Speaker Panel Hook Bracket	2	535-7009-02
				Item 42 is secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2/per) (234-5101-00)			
				(ASM. REF. 515-6888-05, Items 31-42 Only [includes wiring])			

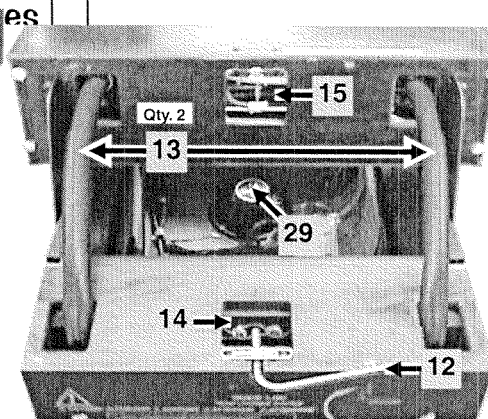
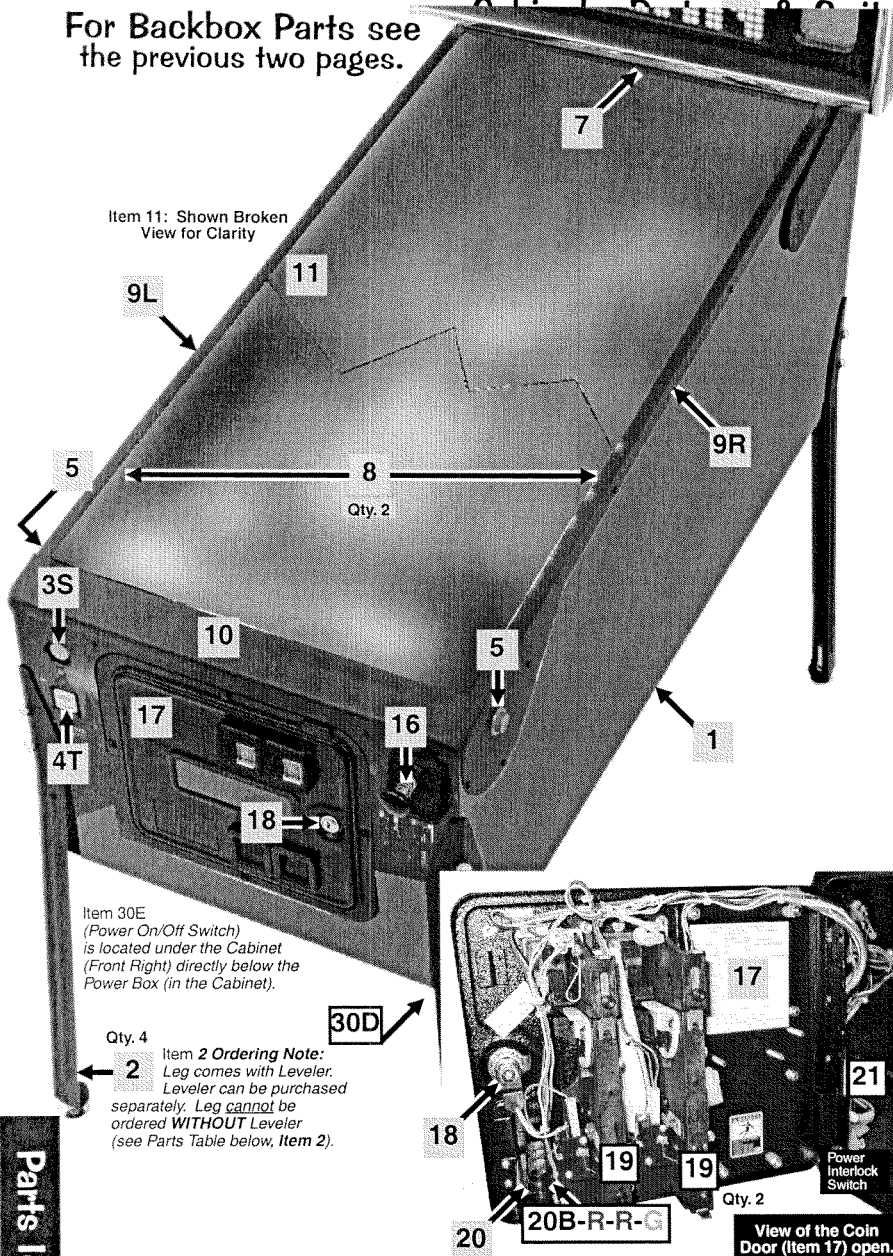
Take Note:

* An asterisk (*) indicates item(s) are not noted in the pictorials.

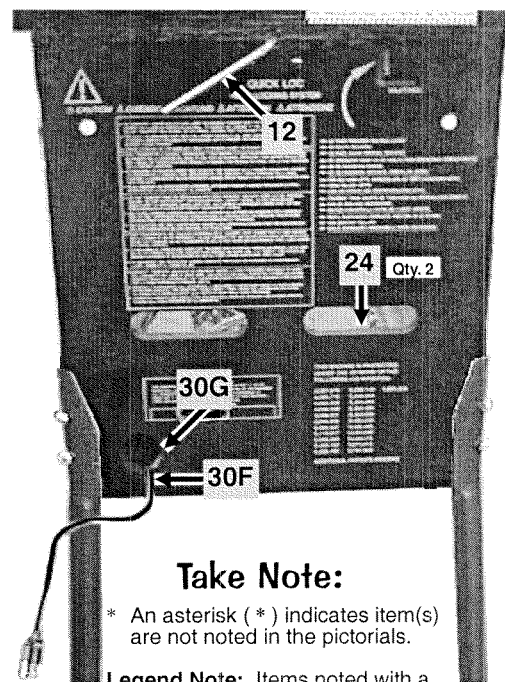
Nr.	BACKGLASS PARTS	QTY.	SPI PART Nr.	Nr.	BACKGLASS PARTS	QTY.	SPI PART Nr.
i*	Glass (Tempered) 25.906" X 19.187" X .125"	1	660-5038-02	iv*	Bottom Plastic Lift Channel - 26"	1	545-6313-01
ii*	24™ Film Art (#A7)	1	830-52A7-00	v*	Plastic Edging (Left/Right) - 18-1/8"	2	545-5018-14
iii*	Top Plastic Channel - 26"	1	545-5018-15	Items i-v are secured to item i by: 3M Tape (Double-Sided), 12" (Qty. 1) (626-5080-00)			
				Note: Only 6" required, sold in 12" lengths only.			

(ASM. REF. 515-5450-00-A2, Items i-v)

For Backbox Parts see the previous two pages.



View of the back of the Cabinet with the Backbox in the down position



Take Note:

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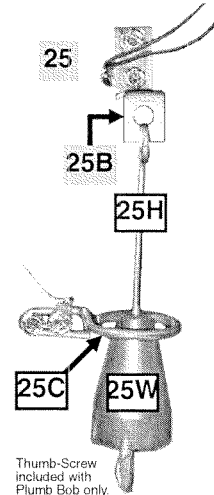
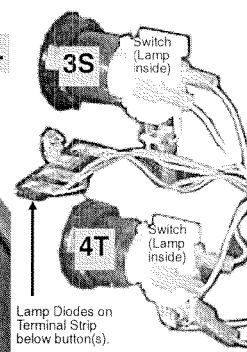
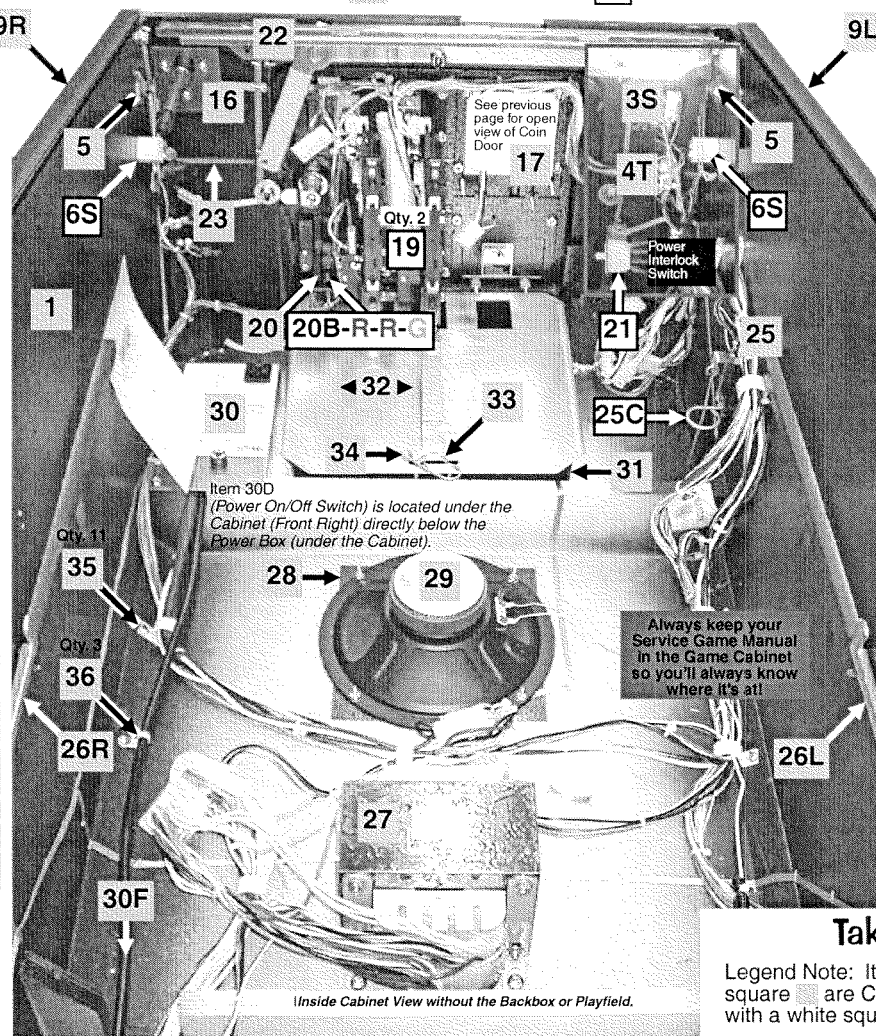
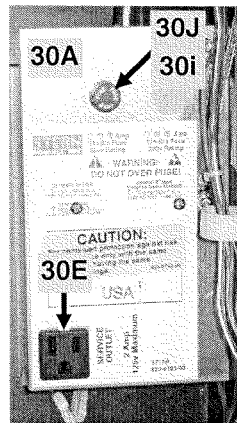
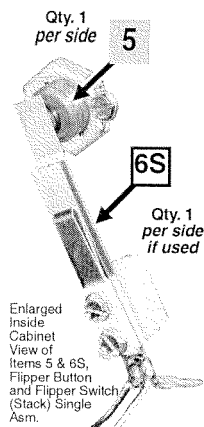
Legend Note: Items noted with a cyan square  are Cabinet Parts. Items noted with a white square  are Switches.

Parts Identification

Nr.	CAB. PARTS & SWITCHES	QTY.	SPI PART Nr.	Nr.	CAB. PARTS & SWITCHES	QTY.	SPI PART Nr.
1	Screened Cabinet 24™ (No Parts)		525-5395-15P-A7	7	Rear Glass Channel 20-3/8" Length	1	545-5038-00
2	Black Leg with Leveler Asm.	4	500-5921-50	8	Plastic Channel 42-5/8" Lg. (Left/Rt.)	2	545-5017-00
Item 2 is secured by: Leg Bolt Back Plate (535-5703-00) and Leg Bolt 3/8" X 16 X 2-1/2" Hex 5/8" Hd. (2/per) (231-5001-01) Leg Leveler ONLY (3/8" x 16 X 3") (500-5017-00).				9L	Side Armor (Left) with Button Guard	1	535-9596-00
3S	Start Button (Green Round) with Sw. + Lamp	1	500-6388-44-TL	9R	Side Armor (Right) with Button Guard	1	535-9596-01
4T	Tournament Button (Yel. Sq.), w/Sw. + Lamp	1	500-6587-06-TL	Items 9L & 9R are secured on front & side by : Perm Stud 1/4 X 1" Flange Head Black (Qty. 1/per) (237-6116-01), 1/4-20 Flange Nut (Qty. 1/per) (240-5300-00) and #8 X 1/2" T20 Tamper Proof Black (Qty. 5/per) (237-6173-05); on rear (backbox) by : #10-24 X 1" Sq. Neck Carrg. Bolt Black (Qty. 1/per) (231-5021-00) and #10-24 Hex Nut (Qty. 1/per) (240-5202-00)			
Item 3S & 4T includes the Switch & Lamp (No Wiring; desolder old wiring where required). Switch or Bulb replacement: on TWIST & LOCK (-L) >> not snap-in << Assembly Parts Included : Microswitch (180-5174-00); #55 Wedge Base Clear Bulb (165-5002-00); if 4T is not desired, use optional Button Plug Black (500-6566-00). Requires 3-Lug Terminal Strip (055-5204-03) and Diodes, 1N4004 (Qty. 2) (112-5003-00) inside cabinet under button(s) for Lamp Operation (Diode for Switch, located on Switch.)				10	Front Molding (Black) < NO BUTTON HOLE >	1	500-6882-02-00
5	Flipper Button (Red) Assembly (No Switch)	2	500-5026-32	Item 10 includes: Self-Adhesive Foam Rubber 3/8" X 3/16" X 20-3/8" (3") (626-5001-00) Item 10 works with Item 22 (next page) ONLY .			
Item 5 is secured by: Pal Nut for Flipper Button (Metal) (Qty. 2/per) (240-5003-01) Pal Nut inside cabinet secured by : #8 X 1/2" SHWH AB (Zinc) (Qty. 1/per) (234-5101-00) and Washer (Zinc), .187" ID X .875" OD X .048" Thick (Qty. 1/per) (242-5059-00)				11	Playfield Glass (Tempered) 21" X 43" X 3/16"	1	660-5001-00
6S	Flipper Switch Single Assembly	2	500-6889-01	12	Hex Key Allen Wrench 5/16"	1	777-0001-00
Assembly Parts Included : Flipper Switch Stack Single (Paliney Contact) (180-5160-01) and Capacitor - Ceramic .05 Mfd 25 volt (130-5001-00) Item 6S/6D are secured to Cab. by: #6 X 1-1/4 SHWH AB (Zinc) (Qty. 2/per) (237-5959-00)				13	Corrugated Tubing Black 1" x 2.6" Lg.	1	605-5008-03
6D	Flipper Switch Double Assembly	0	500-6890-01	Above Item 13 covers the Cable Wiring Harnesses going into the Backbox from the Cabinet.			
Assembly Parts Included : Flipper Switch Stack Double (Paliney Contact) (180-5164-01) and Capacitor - Ceramic .05 Mfd 25 volt (130-5001-00) Item 6S/6D are secured to Cab. by: #6 X 1-1/4 SHWH AB (Zinc) (Qty. 2/per) (237-5959-00)				14	Roto Lock Male (R2-0055-02)	1	355-5006-01
				Item 14 is secured by: #10-24 X 1-3/4" Carriage Bolt Square Neck (Qty. 2) (231-5022-00), #10-24 Nylon Stop Nut (Qty. 2) (240-5206-00) and #10 Washer, 7/32" ID X 1/2" OD X 1/16" Thick (Qty. 2) (242-5003-00)			
15	Roto Lock Female (on Backbox)	1	355-5006-02	16	Ball Shooter (Plunger) Assembly	1	500-6146-00-04

PARTS TABLE & VIEWS CONTINUED ON THE NEXT PAGE. ►

Cabinet - Parts & Switches Continued



Take Note:

Legend Note: Items noted with a cyan square are Cabinet Parts. Items noted with a white square are Switches.

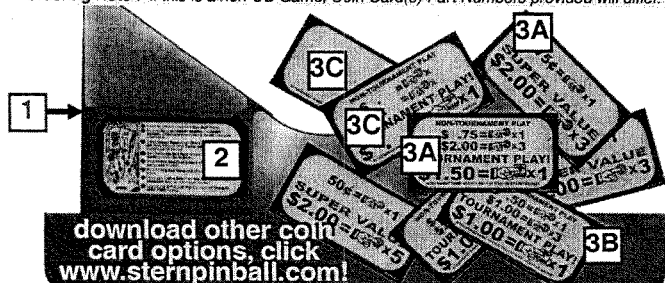
Nr.	CAB. PARTS & SWITCHES	QTY.	SPI PART Nr.	Nr.	CAB. PARTS & SWITCHES	QTY.	SPI PART Nr.
PARTS TABLE & VIEWS CONTINUED FROM THE PREVIOUS PAGE.							
17	Coin Door 2-Cht SV Up-Stk. 4-Button Bracket	1	501-5018-172	27	Transformer 5.7VAC (with Ballast Winding)	1	010-5012-01
Item 17 is secured by: 1/4"-20 X 1-1/4" Carriage Bolt Square Neck (Qty. 4) (231-5003-00) and 1/4"-20 Flange Nut (Qty. 4) (240-5300-00) and Fend Washer 1/4" I.D. X 1" O.D. (Qty. 3) (242-5009-00) Note: For Coin Door other than USA call Technical Support for SPI Part Nr.				Item 27 is secured by: 1/4"-20 X 5/8" PPH MS (Zinc) (Qty. 4) (237-5854-00) and 1/4" Split Lock Washer (Qty. 4) (244-5000-00)			
18	Lock 7/8" Barrel, 435X, Offset Cam	1	355-5021-03K	28	Woofers (Speaker) Grill 7" X 7"	1	545-5072-03
Coin Door Switch (USA) (Happ)				29	Woofers 8" ø Round 8010 4Ω	1	031-5007-01
19	ALT. SW.: 19C: Coin Door Switch (USA) (Coin Control) (180-5024-00)	2	180-5024-01	Items 28 & 29 are secured by: #6-32 X 1-1/4" Fin Shank Screw (Qty. 4) (237-5883-00) and #6-32 Keps Nut (Qty. 4) (240-5008-00)			
ALT. SW.: 19J: Coin Door Switch (¥ Japan) (180-5091-00)				Power Input Box Asm. + Univ. Cable			
20	4-Button Bracket (for Service Menu Buttons)	1	535-6860-04	30A:	Power Box (No Parts) Mounting Frame (535-5932-00)	1	515-5360-08
SWITCH: 20B: Push-Button Service Switch (Black) (180-5192-00)				30B*:	Line Filter (150-5000-00)		
SWITCH: 20R: Push-Button Service Switch (Red) (Qty. 2) (180-5192-02)				30C*:	Varistor* TNR159211KM (Domestic) (150-5001-00)		
SWITCH: 20G: Push-Button Service Switch (Green) (180-5192-04)				or Varistor TRM15G431KM (Euro) (150-5002-00)			
Ordering Note: Securing hardware for switches included. Decal in kit sold separately.				30:	SWITCH: 30D: On/Off Rocker Switch + Bracket Assembly (515-7085-00)		
21	Power Interlock-Memory Protect Switch Asm.	1	500-5808-05	30D incl.: Switch, APEM R2101C5NBB (180-5001-03) + Bracket (535-8318-00)			
Assembly Parts Included: Mounting Bracket (535-9794-00), Power Interlock (Playfield) Switch (180-5136-00) and secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2) (234-5101-00)				30E:	Service Outlet (3-Prong / US) (180-5008-01) / International N/A		
22	Front Molding Lockdown Asm.	1	500-6881-00	30F:	Line Cord 10' ROJ 3" + Ring Terminal Asm. (515-6566-00)		
Item 22 is secured by: #10-24 X 1-1/4" Carr. Bolt (Qty. 2) (231-5012-00) and #10-24 Keps Nut (Qty. 2) (240-5207-00)				30G:	Recessed (Black) Cup (rear of Cabinet) (545-5122-00)		
23	Lockdown Spring (connected to handle)	1	265-5008-00	30H*:	Snap Bushing 9/16" (White) (280-5001-01)		
Item 23 is secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1) (234-5101-00) and #10 Washer, 7/32" ID X 1/2" OD X 1/16" Thick (Qty. 1) (242-5003-00)				30I:	Fuse 8 Amp 250V Slo-Blo (Domestic) (200-5000-05)		
24	Grills 2-1/2" X 18" (on Back & Bottom)	2	545-5072-02	or Fuse 5 Amp 250V Slo-Blo (International) (Qty. 2) (200-5003-00)			
Plumb Bob Tilt Switch Individual Parts Only Ind. Parts Only				30J:	Fuse Holder (205-5001-00)		
25	SWITCH: 25B: Bracket for Hanger Wire (535-5221-00)			Universal Cable & Jumper Caps (all voltage variations): See the Yellow Pages, Page y 10.			
25C: Contact Wire Form (535-7563-01)				31	Cash Box Plastic Bottom	1	545-5090-00
25H: Hanger Wire (535-5319-02)				32	Cash Box Cover (Validator)	1	535-5013-03
Item 25B is secured to Cabinet by: #6 X 5/8" SHWH AB (Zinc) (Qty. 4) (234-5002-00)				33	Cash Box Lock Bracket (U-Wire)	1	535-7562-00
26L	Slide & Pivot Support Bracket (Left)	1	535-5989-00	Item 33 is secured by: #8 X 5/8" HWH AB (Green) (Qty. 2) (234-5102-04)			
26R	Slide & Pivot Support Bracket (Right)	1	535-5990-00	34	Large Hair-Pin Clip	1	535-7772-00
Items 26L & 26R are secured by: #10-24 X 1-1/4" Carriage Bolt Square Neck Black (3/8") (231-5012-00) and #10-24 KEPS Nut (3/8") (240-5207-00)				35	Clamps [Multiple Sizes]	12	040-5000-XX
				Item 35 is secured to Item 1 by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/2) (234-5101-00)			
				For following sizes, replace -XX with: 3/4" Single = -08 (Qty. 9); 1-1/2" Single = -10 (Qty. 3)			
				36	Zip Cable Tie (Screw Down Style)	3	040-5005-00
				Item 36 is secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/2) (234-5101-00)			
				37†	Meter +12VDC with Bracket Optional	opt.	G-0053-013-102
				† Meters (Diode included) are optional and were not included in this Pinball Machine. Order without the bracket use G-0053-013-102A. More information or Qs? Call Technical Support.			

Parts Identification

Main Playfield Top - Miscellaneous Parts ☐ and Brackets ☐

Nr.	THE PLAYFIELD	QTY.	SPI PART Nr.
Main	P/F Screened w/ Inserts & NO Parts	1	830-5100-A7
P/F	P/F Complete w/ Inserts & ALL Parts	1	505-6004-A7-A7

Nr.	MISC. PARTS (ABOVE)	QTY.	SPI PART Nr.
1	Arch (Black Metal) [no Forks]	1	535-8392-01
Item 1 is secured to Item 9 below by: #10-32 X 5/16" PFH U/C MS (Zinc) (Qty. 2) (237-6013-00) Usage Note: When replacing the Arch, order new replacement Nelson Protect Strips 7-5/8" (not included) (Qty. 2) (545-5212-04; use -02 for 8-9/16" size) For Decals, see Playfield Top - Plastics Kit, Decals & Mylar Kits.			
2	Inst. Card [Eng./Spanish] 24"™	1	755-51A7-12-Y
Note: Visit www.sternpinball.com for a PDF copy of the Game Instruction Card which will also have any translated Instruction Cards made for this game. Find Game Link or Archives. Spanish 755-51A2-12-Y; German 755-51A2-03-Y; Italian 755-51A2-04-Y; French 755-51A2-05-Y.			
3A	Coin Card (2-Sided) USA 10 Default	1	755-5400-11-Y
3B	Coin Card (2-Sided) USA 5	1	755-5400-08-Y
3C	Coin Card (2-Sided) Blank for Custom	1	755-5400-04-Y
For Coin Card views, see below or online: http://www.sternpinball.com/coinagecards.shtml Ordering Note: If this is a non-US Game, Coin Card(s) Part Numbers provided will differ.			



4	Light Cover w/ tabs (Clear)	1	550-5030-01
4R	Light Cover w/ tabs (Red)	2	550-5031-02
4A	Light Cover w/ tabs (Amber)	4	550-5031-03

5	Light Reflector (Silver Plst.) REF540N	4	545-5409-01
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6	Gate Assembly	1	535-6490-04-A
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7	Bubble Level Assembly	1	500-6815-00
Assembly Parts Included: Level 8mm Empire #0224 (545-6001-01) or Level Mount (545-6068-00). Flange secured by: #6-32 X 1/4" PPH MS (no Sems) Zinc (237-5500-00) and #6-32 Keps Nut (240-5008-00). Item 7 is secured to the Wood Rail by: #6 X 1-3/4" PPH AB (Zinc) (Qty. 2) (232-5009-00).			

8	Pinball (Steel) 1-1/16" ø	4	260-5000-00
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Nr.	MISC. BRACKETS (ABOVE)	QTY.	SPI PART Nr.
9	Shooter Ramp (Shooter Lane)	1	535-8145-00

10	Bracket, Playfield Hanger	2	535-8385-00
Item 10 is secured to the Playfield (P/F) by: #8-32 X 7/8" Unslotted HWH MS Zinc (Qty. 2/per) (237-5890-00) and #8-32 T-Nut (Qty. 2/per) (240-5101-00).			

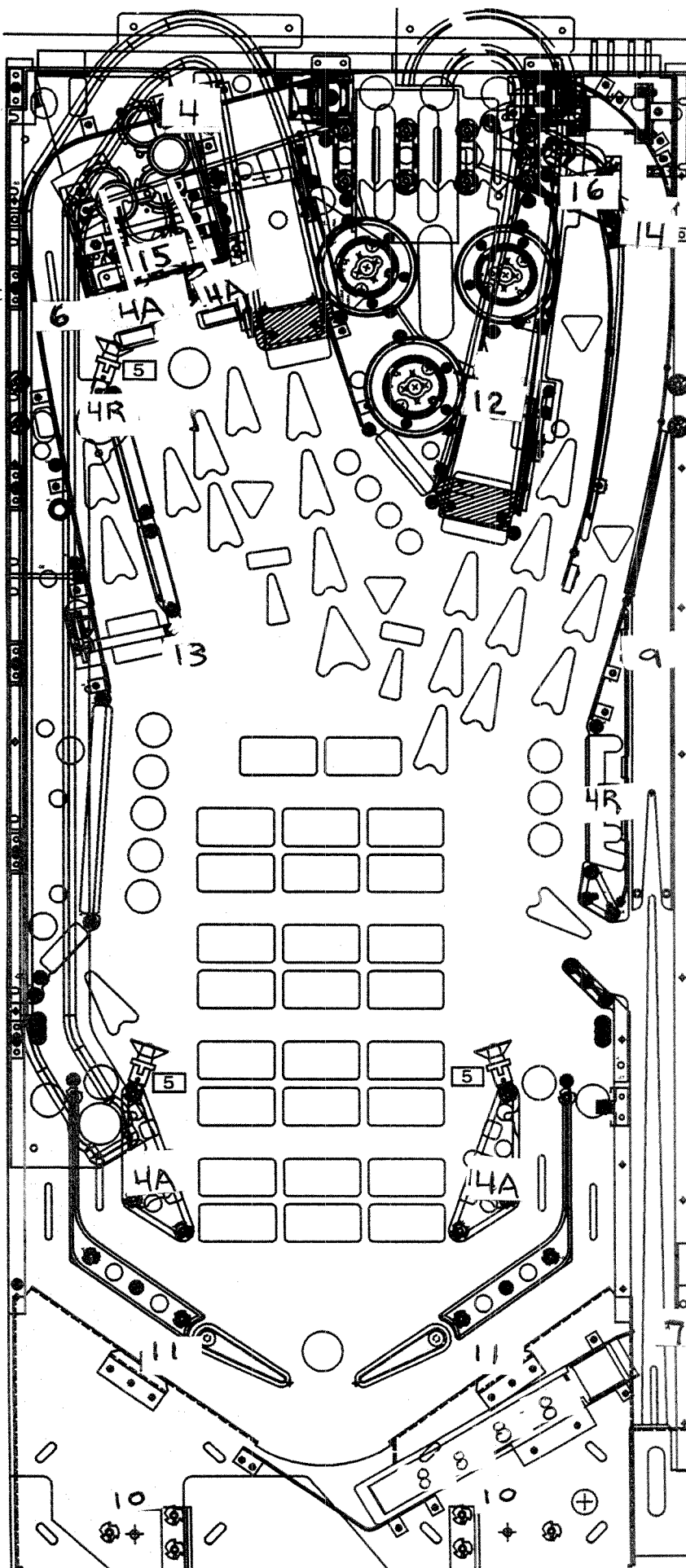
11	Bracket, Arch Retaining (Hold-Down)	2	535-8394-00
Item 11 is secured to the P/F by: #8 X 1/2" SHWH AB (Zinc) (Qty. 3/per) (234-5101-00).			

12	Gate Assembly	1	515-6556-01
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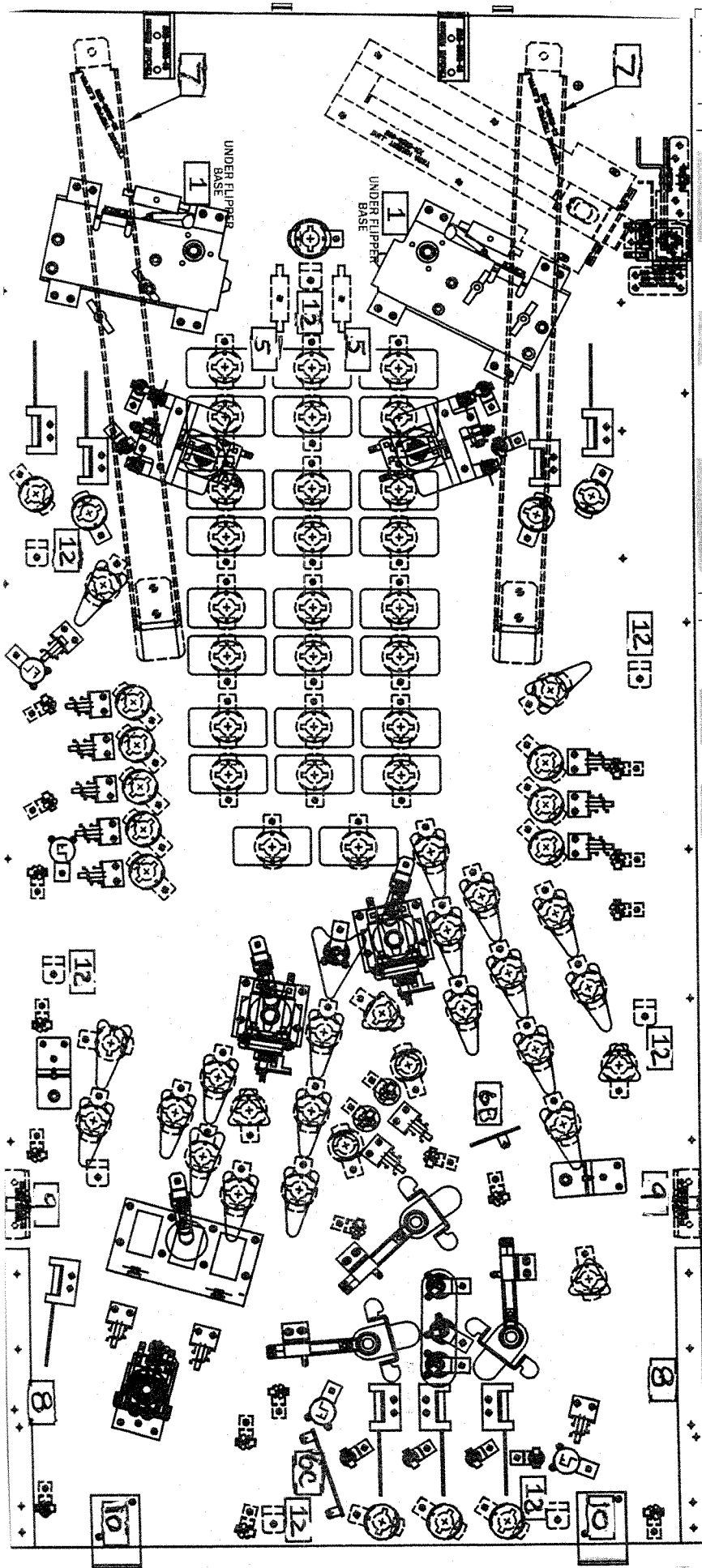
13	Spinner Assembly	1	515-7649-00
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14	Gate Assembly	1	535-6556-03-A
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Nr.	MISC. PARTS	QTY.	SPI PART Nr.
15	Safe House Figurine	2	545-6319-02
16	Snipper House Figurine	1	545-6319-00



Main Playfield Bottom - Miscellaneous Parts and Brackets



Nr.	THE PLAYFIELD	QTY.	SPI PART Nr.
Main	P/F Screened w/ Inserts & NO Parts	1	830-5100-A7
P/F	P/F Complete w/ Inserts & ALL Parts	1	505-6004-A7-A7

Nr.	MISC. PARTS (BELOW)	QTY.	SPI PART Nr.
1	Insulation Fiche Paper (under Lower Flippers)	2	545-5721-00
2c	Relay + Conn. Asm.	0	511-5181-00
2s	Relay + Conn. Asm.	0	511-5181-01

Item 2 is secured by: #6 X 1/2" SHWH AB (Zinc) Red (Qty. 2/per) (234-5001-02)
For more details on Items 2C & 2S, see the Yellow Pages, Backbox Wiring, Page y 3.
Individual Part Reference Only: Relay Picker #PC113-2C-C1-24D-LD-X (190-5004-00)

3	PCB, OPTO Transceiver Amplifier	0	520-5239-01
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Item 3 is secured by: #6 X 3/4" SHWH AB (Zinc) (Qty. 4) (234-5003-00)
Application Note: Required for OPTO Transceiver Pairs (500-6775-01) listed on the next page (... Switches). See the Yellow Pages, PCBs, Pages y 42 - y 43.

4	Resistor, 10W 5Ω RJ X4 RCD K5-451	0	121-5000-00
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Item 4 are soldered to Item 4A (Qty. 2). For more details on Item 4, see the Yellow Pages, Backbox Wiring, Page y 3. To order Item 4 X4 soldered to Terminal Strip, use 511-5200-00.

5	3A 250v Slo-Blo Fuse	2	200-5000-08
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	Fuse Clip Holder (Socket)	1	205-5000-01
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Item 5 is secured by: #6 X 1/2" PPH AB (Qty. 1/per) (237-5805-00)
Note: Item 5, Fuse Clip Holder (Socket) 205-5000-01 is part of a set of 12 (205-5000-12). You can order them as individuals (...-01) or a set of 12 (...-12).

6A	Diode Terminal Strip 2-Lug (810) Isolated	0	055-5203-00
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6B	Diode Terminal Strip 3-Lug (813) Isolated	1	055-5204-03
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6C	Diode Terminal Strip 5-Lug (824) Isolated	1	055-5204-05
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Items 6B-6C are secured by: #6 X 3/8" HWH AB Zinc (Qty. 1-2/per) (234-5000-00)
Item 6B (Qty. 1) located in Cabinet. Note: 1N4004 Diodes (112-5003-00) are used in all Diode applications. 1N4001 Diodes can be used for Switches and/or Lamps.

Nr.	MISC. BRACKETS (BELOW)	QTY.	SPI PART Nr.
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7	Bracket, Playfield Support Slide	2	535-6862-05
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Item 7 is secured by: #10 X 1/2" HWH A (Zinc) (Qty. 2/per) (237-5817-00), #8-32 X 5/8" SHWH Swage (Zinc) Wax (Qty. 1/per) (237-5975-03) and #8-32 T-Nut (Qty. 1/per) (240-5101-00)

8	Bracket, Edge Slide (Extended)	2	535-5988-01
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Item 8 is secured by: #4 X 1/2" PFH (Zinc) (Qty. 5/per) (237-5840-00) and #8-32 T-Nut (Qty. 2/per) (240-5101-00)

9	Bracket, Pivot Pin Welded Assembly	2	500-5329-03
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Item 9 is secured by: #8-32 X 5/8" SHWH Swage (Zinc) Wax (Qty. 2/per) (237-5975-03)

10	Bracket, Back Panel Mounting	2	535-8964-00
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Item 10 is secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2/per) (234-5101-00) and #8-32 T-Nut (Qty. 2/per) (240-5101-00) For a 3D View: See the Blue Pages, Page b 23.

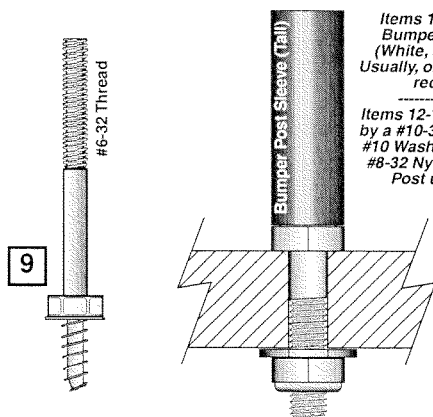
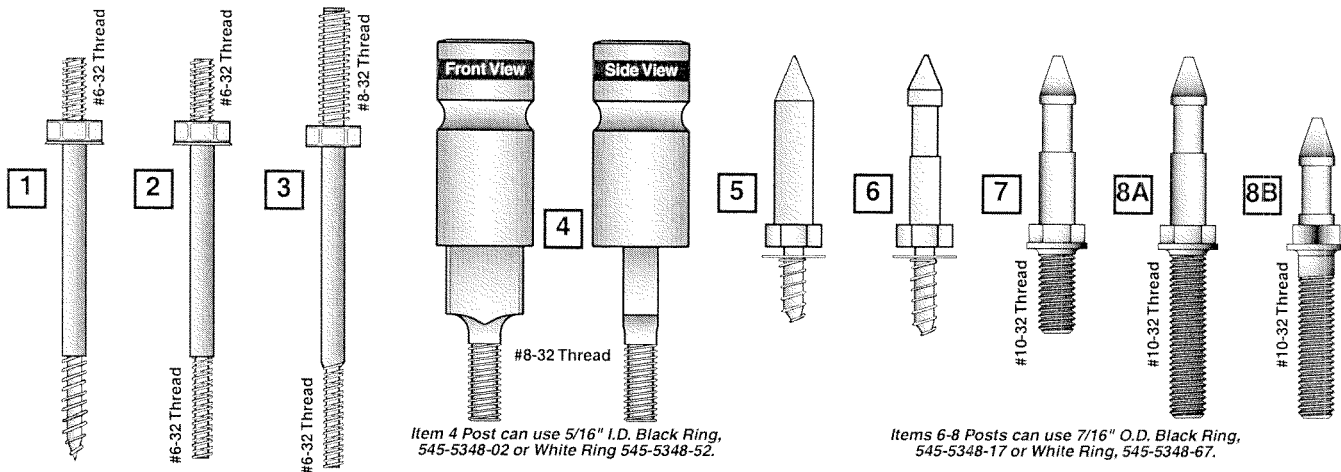
11	Bracket, Hole Protect (center up-post)	0	535-0289-00
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Item 11 secured under the playfield by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2) (234-5101-00)

12	Tie Post (White Nylon) 3-1/2"	22	545-5253-01
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Item 12 is secured by: #6 X 5/8" SHWH AB Green (Qty. 1/per) (234-5002-00) and wiring with Cable Tie, 5-1/2" (Qty. 1/per) (040-5001-02)

Playfield - Metal Posts & Fin Shank Screws (Actual Size) †



Items 11-16 & 18 Posts can use a Black Bumper Post Sleeve (Tail), 545-5308-00 (White, 545-5308-08 or Red, 545-5308-22) Usually, only Posts which are in the ball path require a Bumper Post Sleeve.

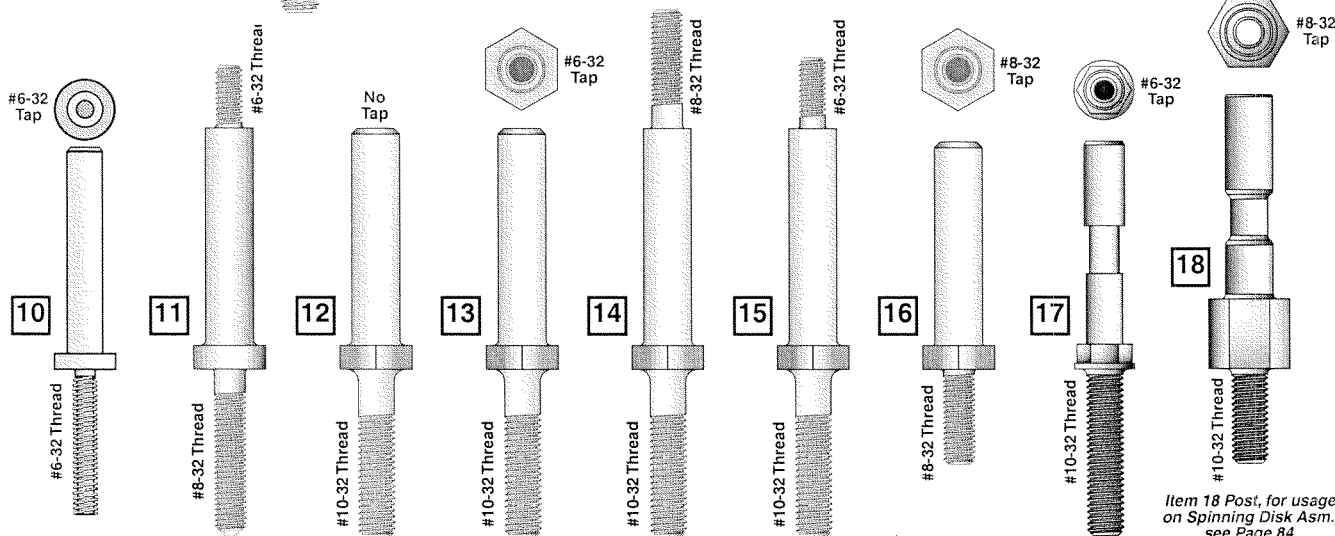
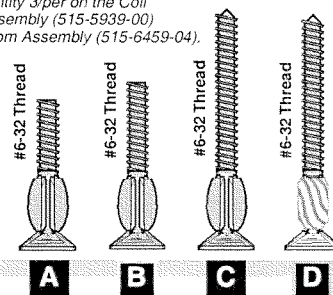
Items 12-15 & 18 Posts are typically secured by a #10-32 Nylon Stop Nut, 240-5203-00 and #10 Washer, 242-5010-00 (Item 11 Post use a #8-32 Nylon Stop Nut, 240-5102-00; Item 16 Post use a #8-32 T-Nut, 240-5101-00).

A & B Items A & B Note: Typically used to secure Hex Spacers onto the Playfield Wood or Back Panel.

C Item C Note: Quantity 4 on bottom Cabinet Speaker Grill (Qty. 4) (also requires #6-32 Nylon Stop Nut, 240-5005-00).

D Item D Note: Quantity 3/per on the Coil Bracket Welded Assembly (515-5939-00) in the Bumper Bottom Assembly (515-6459-04).

A-D Items A-D Note: The "Fins" keep the screw from turning inside the wood hole.



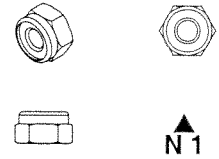
Item 18 Post, for usage on Spinning Disk Asm., see Page 84.

Parts Identification

Nr.	METAL POSTS	SPI PART Nr.	Nr.	METAL POSTS	SPI PART Nr.
1	Post [Fasten] #6-32 Thread // Wood Screw	530-5010-02	12	Post [Hex Base] NO TAP // 10-32 Thread	530-5332-00
2	Post [Fasten] #6-32 Thread // #6-32 Thread	530-5012-02	13	Post [Hex Bs.] #6-32 TAP // #10-32 Thread	530-5332-01
3	Post [Fasten] #8-32 Thread // #6-32 Thread	530-5008-00	14	Post [Hex Bs.] #8-32 Thread // #10-32 Thr.	530-5332-02
4	Post Brass [Adjustable, Sliding] #8-32 Thread	530-5621-00	15	Post [Hex Bs.] #6-32 Thread // #10-32 Thr.	530-5332-03
5	Mini-Post Wood Screw (no cut-away)	530-5004-01	16	Post [Hex Bs.] #8-32 TAP // #8-32 Thread	530-5332-04
6	Mini-Post Wood Screw	530-5004-00	17	Post [Hex Bs.+Groove] #6-32 TAP // #10-32 Thr.	530-5679-00
7	Mini-Post Machine Scr. // #10-32 .4" Thread	530-5005-01	18	Post [Hex Bs.+Groove] #8-32 TAP // #10-32 Thr.	530-5753-00
8A	Mini-Post MS // #10-32 .875" Thread	530-5005-00			
8B	Mini-Post Short MS // #10-32 .875" Thread	530-5749-00			
9	Post [Fasten] #6-32 Thread // Wood Screw	530-5263-01			
10	Post #6-32 Tap // #6-32 Thread	530-5127-00			
11	Post [Fasten] #6-32 Thread // #8-32 Thread	530-5007-00			
Nr.	FIN SHANK SCREWS	SPI PART Nr.	Nr.	FIN SHANK SCREWS	SPI PART Nr.
A	#6-32 X 3/4" Fin Shank Screw	237-5921-02			
B	#6-32 X 7/8" Fin Shank Screw	237-5921-04			
C	#6-32 X 1 1/4" Fin Shank Screw	237-5883-00			
D	#6-32 X 1 3/16" Spiral Fin Shank Screw	237-5957-00			

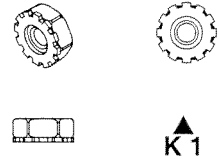
Playfield - Nylon Stop, KEPS, Hex, T-, Flange, Pal* & Wing Nuts* (Actual Size) †

Nr.	NYLON STOP NUTS*	SPI PART Nr.
N1	#6-32 Nylon Stop Nut	240-5005-00
N2	#6-32 N.S. Nut (with 1/4" Hex Body)	240-5010-00
N3	#8-32 Nylon Stop Nut	240-5102-00
N4	#10-32 Nylon Stop Nut	240-5203-00
N5	#10-24 Nylon Stop Nut	240-5206-00
<i>Item N5 used with #10-24 X 1-3/4" Carriage Bolt Square Neck Black (231-5022-00) located in the Cabinet for the Foto Lock (Male) (355-5006-01).</i>		
N6	#4-40 Nylon Stop Nut	240-5303-00
N7	#4-40 (18/8 Stainless) Nylon Stop Nut	240-5303-01
N8	5/16"-18 Nylon Stop Nut	240-5316-00



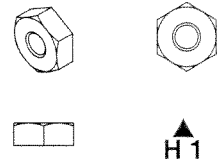
▲
N1

Nr.	KEPS NUTS*	SPI PART Nr.
K1	#6-32 Keps Nut (with Star Washer)	240-5008-00
K2	#6-32 Keps Nut (with 1/4" Hex Body)	240-5011-00
K3	#8-32 Keps Nut	240-5104-00
K4	#10-32 Keps Nut	240-5208-00
K5	#10-24 Keps Nut	240-5207-00
K6	#4-40 Keps Nut	240-5318-00



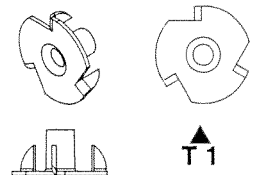
▲
K1

Nr.	HEX NUTS*	SPI PART Nr.
H1	#6-32 Hex Nut (No Star Washer)	240-5004-00
H2	#8-32 Hex Nut	240-5103-00
H3	#10-32 Hex Nut	240-5201-00
H4	#10-24 Hex Nut	240-5202-00
<i>Item H4 used with #10-24 X 1" Carriage Bolt Square Neck Black (231-5021-00) located in the Cabinet for the Side Armor Rear (towards Backbox).</i>		
H5	#10-32 X 3/8" Hex Nut	240-5209-00
H6	3/4-16 Hex Nut	240-5315-00
H7	#2-56 Hex Nut	240-5301-00
H8	7/8"-14 Hex Nut	240-5317-00



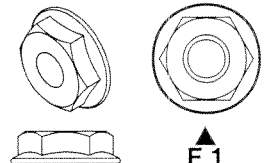
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H1

Nr.	T-NUTS*	SPI PART Nr.
T1	#6-32 T-Nut	240-5002-00
T2	#6-32 T-Nut (with Side Cut Off)	240-5002-01
T3	#8-32 T-Nut	240-5101-00
T4	#10-32 (Black Oxide) T-Nut	240-5007-00
T5	#10-32 T-Nut (with Side Cut Off)	240-5205-00
T6	#10-32 X 5/16" 3-Prong T-Nut	240-5204-00
T7	#10-24 T-Nut	240-5200-00



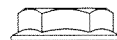
▲
T1

Nr.	FLANGE NUT*	SPI PART Nr.
F1	1/4" X 20 Flange Nut	240-5300-00
<i>Item F1 used with 1/4-20 X 1-1/4 Sq. Neck Carriage Bolt Black (231-5003-00) located in the Cabinet for the Slide Armor (Front) and Pivot Hinges.</i>		



▲
F1

Nr.	PAL NUTS*	SPI PART Nr.
P1	Plastic Pal Nut (on Flipper Buttons)	240-5003-00
P2	Metal Pal Nut (on Flipper Buttons)	240-5003-01



* Not Shown

Nr.	WING NUTS*	SPI PART Nr.
W1	#6-32 Wing Nut	240-5001-00
W2	#8-32 Wing Nut	240-5100-00
W3	#10-24 Wing Nut	240-5211-00
W4	1/4"-20 Wing Nut	240-5302-00
W5	1/4"-20 Toggle Wing	240-5324-00

* Not Shown

Parts Identification

NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.

Playfield Top - Hex Spacers (Actual Size) ‡

Hex Spacers:

#6-32

Tap



1

2

3A

4A

5

6A

7

8A

8B

example of "Bs"
with Male #6-32 Thread
1-end, #6-32 Tap on other.

9

10

11

12

13

14

15

16

17

18

19

20

21

22

Take Note:

Items 1-33 are 1/4" wide. Items 34-39 are 5/16" wide. With Items 1-3A, 4A, 5 & 6A (the tap goes thru the length of spacer). With Items 7, 8A, 9-33 & 34-39, the tap is up to 5/8" deep on each end. **Note:** Items 3B, 4B, 6B (Not Shown) & 8B (Shown as example of all "B" Styles) all have a #6-32 Threaded end, the other end Tapped (same as Items 7-33).

‡ Hex Spacers Not Used in current games may no longer be available. Choose an available size (+/-) and compensate with washers or other spacers.

- ☒ Hex Spacer Nut 1/5" O.D. X 1/4"-20 BO (254-5042-00) (Qty. 2) (with Pivot Hinges Item 29L/R, Page 43, Backbox Parts).
- ☒ Hex Spacer (254-5052-00) (Qty. 4)

Item 42 Hex Spacer 1/2" X 1/4" #6-32 M/F (Qty. 0) (254-5049-03)
Item 43 Hex Spacer 1-1/2" X 1/4" #6-32 M/F (Qty. 1) (254-5049-09)



3 1/4" - 26 27 - 3 1/2"

3 1/8" - 25 28 - 3 5/8"

3" - 24 29 - 3 3/4"

2 7/8" - 23 30 - 4"

2 1/2" - 31 32 - 4 1/4"

2 5/8" - 33 34 - 5 1/4"

2 3/4" - 35 36 - 1 1/4"

2 1/4" - 37 38 - 1 3/4"

2 1/8" - 39 40 - 2"

2 1/4" - 41 42 - 1 7/8"

2 1/8" - 43 44 - 1 1/2"

2 1/4" - 45 46 - 1 1/4"

2 1/8" - 47 48 - 1 3/8"

2 1/4" - 49 50 - 1 1/2"

2 1/8" - 51 52 - 1 3/4"

2 1/4" - 53 54 - 1 1/2"

2 1/8" - 55 56 - 1 3/8"

2 1/4" - 57 58 - 1 1/2"

2 1/8" - 59 60 - 1 3/4"

2 1/4" - 61 62 - 1 1/2"

Item 44 Hex Spacer
1.13" X .31" #8-32 M/F
(Qty. 0) (254-5050-00)
Not Used This Game

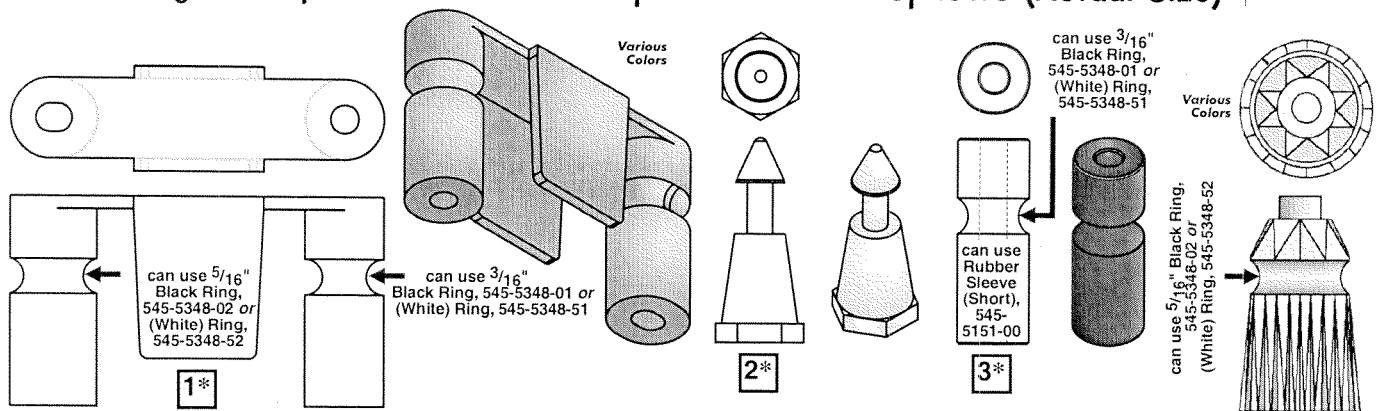
A Standard USA 9 Inch Ruler
is provided on the back cover.

Parts Identification

Nr.	HEX SPACERS	SPI PART Nr.	Nr.	HEX SPACERS	SPI PART Nr.
1	1/4" X 1/4" : #6-32 Tap (both ends)	254-5008-00	19	2 3/8" X 1/4" : #6-32 Tap (both ends)	254-5008-28
2	3/8" X 1/4" : #6-32 Tap (both ends)	254-5008-12	20	2 1/2" X 1/4" : #6-32 Tap (both ends)	254-5008-16
3A	1/2" X 1/4" : #6-32 Tap (both ends)	254-5008-03	21	2 5/8" X 1/4" : #6-32 Tap (both ends)	254-5008-08
3B*	Identical to 3A with #6-32 Thread end	254-5024-03	22	2 3/4" X 1/4" : #6-32 Tap (both ends)	254-5008-15
4A	5/8" X 1/4" : #6-32 Tap (both ends)	254-5008-02	23	2 7/8" X 1/4" : #6-32 Tap (both ends)	254-5008-31
4B*	Identical to 4A with #6-32 Thread end	254-5024-02	24	3" X 1/4" : #6-32 Tap (both ends)	254-5008-14
5	3/4" X 1/4" : #6-32 Tap (both ends)	254-5008-04	25	3 1/8" X 1/4" : #6-32 Tap (both ends)	254-5008-19
6A	7/8" X 1/4" : #6-32 Tap (both ends)	254-5008-05	26	3 1/4" X 1/4" : #6-32 Tap (both ends)	254-5008-26
6B*	Identical to 6A with #6-32 Thread end	254-5024-05	27	3 1/2" X 1/4" : #6-32 Tap (both ends)	254-5008-27
7	1" X 1/4" : #6-32 Tap (both ends)	254-5008-06	28	3 5/8" X 1/4" : #6-32 Tap (both ends)	254-5008-25
8A	1 1/8" X 1/4" : #6-32 Tap (both ends)	254-5008-17	29	3 3/4" X 1/4" : #6-32 Tap (both ends)	254-5008-36
8B	Identical to 8A with #6-32 Thread end	254-5024-17	30	4" X 1/4" : #6-32 Tap (both ends)	254-5008-21
9	1 1/4" X 1/4" : #6-32 Tap (both ends)	254-5008-11	31	4 1/8" X 1/4" : #6-32 Tap (both ends)	254-5008-23
10	1 5/16" X 1/4" : #6-32 Tap (both ends)	254-5008-34	32	4 1/4" X 1/4" : #6-32 Tap (both ends)	254-5008-30
11 ‡	1 3/8" X 1/4" : #6-32 Tap (both ends)	254-5008-33	33	4 3/8" X 1/4" : #6-32 Tap (both ends)	254-5008-29
12	1 1/2" X 1/4" : #6-32 Tap (both ends)	254-5008-09	34	5 1/4" X 1/4" : #6-32 Tap (both ends)	254-5008-35
13 ‡	1 5/8" X 1/4" : #6-32 Tap (both ends)	254-5008-13	35	1 1/4" X 5/16" : #6-32 Tap (both ends)	254-5018-09
14	1 3/4" X 1/4" : #6-32 Tap (both ends)	254-5008-10	36	1 3/4" X 5/16" : #6-32 Tap (both ends)	254-5018-06
15 ‡	1 7/8" X 1/4" : #6-32 Tap (both ends)	254-5008-20	37	2" X 5/16" : #6-32 Tap (both ends)	254-5018-07
16	2" X 1/4" : #6-32 Tap (both ends)	254-5008-07	38	4" X 5/16" : #6-32 Tap (both ends)	254-5018-03
17	2 1/8" X 1/4" : #6-32 Tap (both ends)	254-5008-32	39	4 5/16" X 5/16" : #6-32 Tap (both ends)	254-5018-00
18	2 1/4" X 1/4" : #6-32 Tap (both ends)	254-5008-18	40	4.92" X 5/16" : #6-32 Tap (both ends)	254-5018-04

**NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.**

Playfield Top - Plastic Posts & Spacers & Metal Spacers (Actual Size) †



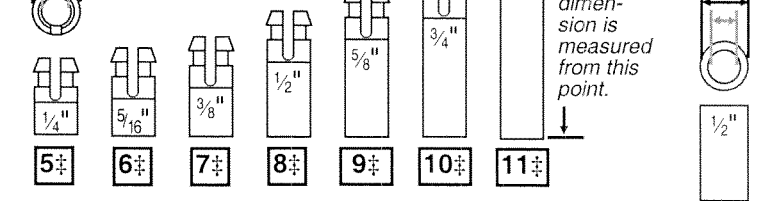
PLASTIC PART COLOR CHART

Nr.	Color	Nr.	Color	Nr.	Color
-00	Black	-06	Yellow	-12	Fluor. Blue
-01	Clear	-07	Orange	-13	Teal Green
-02	Red	-08	(White)	-14	(Gray)
-03	Amber	-09	Purple	-15	Luminescent
-04	Green	-10	Fluor. Org.	-16	Gold
-05	Blue	-11	Fluor. Green		

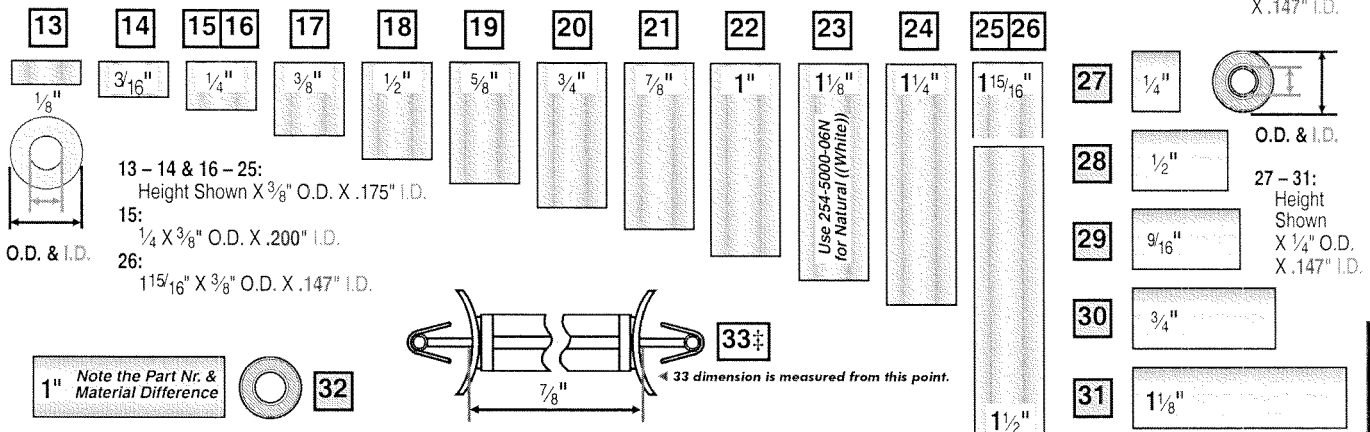
* Items 1 & 5 come in various colors. The "-XX" (the last 2-Digits in the Part Number), should be replaced with the desired 2-Digit number from the above Color Chart (may not be available in every color; other colors used in prior games may no longer be available.) Call for availability.

O.D. & I.D.

5 - 11:
Height Shown X $\frac{9}{32}$ " O.D.
X .153" I.D.



† Items 5 through 11 dimensions are measured from bottom to just under the cut-away. Item 33 dimension is measured from top-to-top of curve. See pictorials with Items 11 & 33.

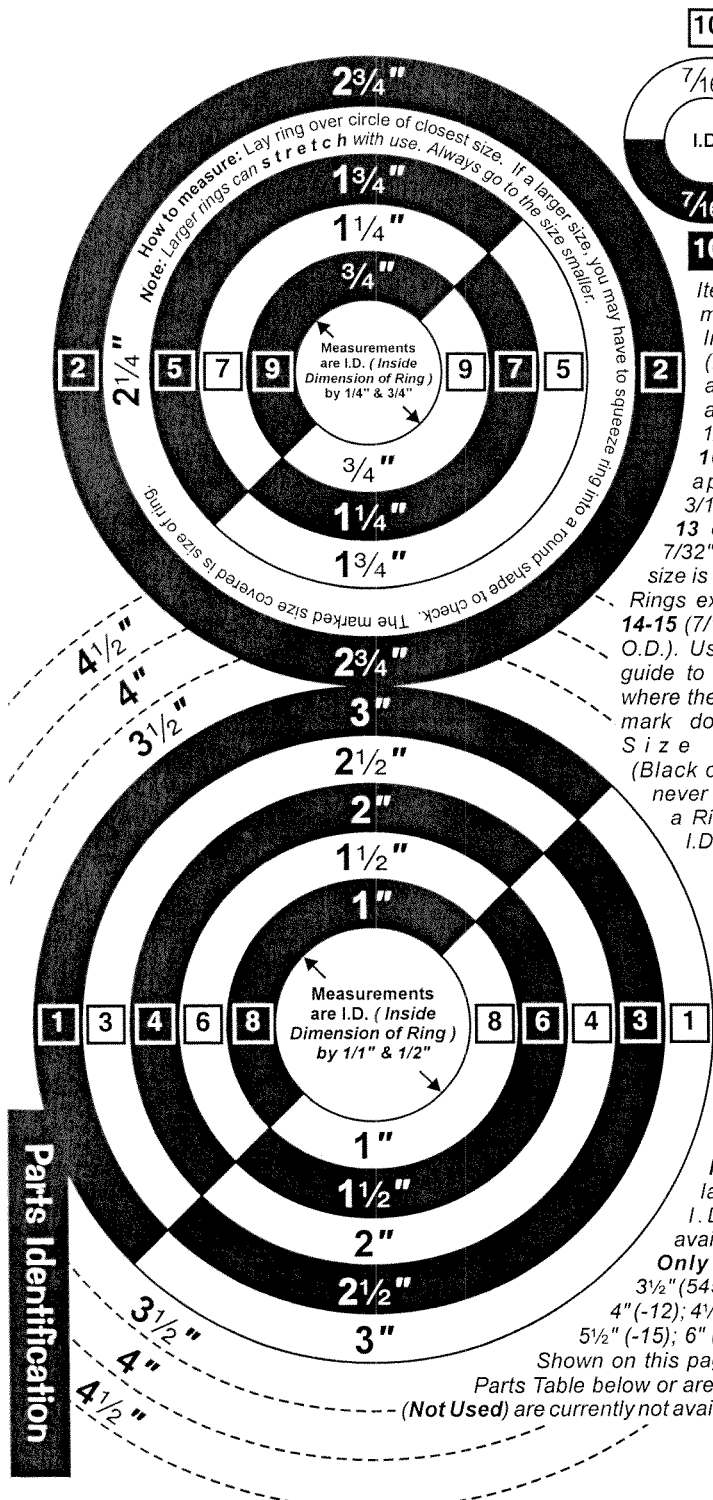


Nr.	PLASTIC POSTS & SPACERS	SPI PART Nr.	Nr.	PLASTIC POSTS & SPACERS	SPI PART Nr.
1**	Top Lane Plastic Mini-Lite Hood (XX-Color)	550-5061-XX	21	$\frac{7}{8}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spacer (Gray)	254-5000-11
2**	Mini-Jewel Plastic Post (XX-Color)	550-5052-XX	22	1" X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spacer (Gray)	254-5000-04
3**	1 $\frac{1}{16}$ " 1-Groove Plastic Post (XX-Color)	550-5059-XX	23	1 $\frac{1}{8}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spcr. (Gray)	254-5000-06
Item 3 Only : Use Part Number (550-5059-00) for color Black.			Item 23 Only : Add the letter "N" for color Natural (if available) or "B" for color Black.		
4**	1-Groove Jewel Plastic Post (XX-Color)	550-5034-XX	24	1 $\frac{1}{4}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spcr. (Gray)	254-5000-05
Items 3 & 4 typically sec'd by: Post Fastening Scr. #6-32 Top / #6-32 Bot. (530-5012-02). Use Color Chart above for last 2-digits. Not all colors are available.			25	1 $\frac{1}{2}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spcr. (Gray)	254-5000-08
Items 1-4 Note: Use Color Chart above for last 2-digits. Not all colors are available.			26	1 $\frac{15}{16}$ " X $\frac{3}{8}$ " O.D. X .147" I.D. Plastic Spacer (Gray)	254-5000-15
Items 13-26 Note: Spacers may also be Black in color (random from vendor).			Not Shown and listed for reference only : 254-5000-10: 2 $\frac{1}{2}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. -13: 5/16" X $\frac{1}{4}$ " X .147"; -16: 5/16" X 5/16" X .190"; -17: 13/4" X $\frac{3}{8}$ " O.D. X .175" I.D.		
5 ‡	$\frac{1}{4}$ " Self Retain. Plastic Spacer (White)	254-5007-02	27	$\frac{1}{4}$ " X 5/16" O.D. X .144" I.D. Metal Spacer	254-5014-03
6 ‡	$\frac{9}{16}$ " Self Retain. Plastic Spacer (White)	254-5007-05	28	$\frac{1}{2}$ " X 5/16" O.D. X .144" I.D. Metal Spacer	254-5014-00
7 ‡	$\frac{3}{8}$ " Self Retain. Plastic Spacer (White)	254-5007-01	29	$\frac{9}{16}$ " X 5/16" O.D. X .144" I.D. Metal Spacer	254-5014-04
8 ‡	$\frac{1}{2}$ " Self Retain. Plastic Spacer (White)	254-5007-04	30	$\frac{3}{4}$ " X 5/16" O.D. X .144" I.D. Metal Spacer	254-5014-01
9 ‡	$\frac{5}{8}$ " Self Retain. Plastic Spacer (White)	254-5007-00	31	1 $\frac{1}{8}$ " X 5/16" O.D. X .144" I.D. Metal Spacer	254-5014-02
10 ‡	$\frac{3}{4}$ " Self Retain. Plastic Spacer (White)	254-5007-03	32	1" X 5/16" O.D. X .144" I.D. Metal Spacer	254-5001-00
11 ‡	1" Self Retain. Plastic Spacer (White)	254-5007-06	33 ‡	$\frac{7}{8}$ " Plastic Spacer Support (Dual-Locking)	254-5039-14
12	$\frac{1}{2}$ " X $\frac{1}{4}$ " O.D. X .147" I.D. Pls. Spacer (White)	254-5000-03	34	Plastic Spacer, .5"	254-5054-00
13	$\frac{7}{8}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spacer (Gray)	254-5000-19	35	Plastic Spacer, 1.13"	254-5054-01
14	$\frac{3}{16}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spcr. (Gray)	254-5000-18			
15	$\frac{1}{4}$ " X $\frac{3}{8}$ " O.D. X .200" I.D. Pls. Spcr. (Gray)	254-5000-02			
16	$\frac{1}{4}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spacer (Gray)	254-5000-09			
17	$\frac{3}{8}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spacer (Gray)	254-5000-12			
18	$\frac{1}{2}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spacer (Gray)	254-5000-01			
19	$\frac{5}{8}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spacer (Gray)	254-5000-14			
20	$\frac{3}{4}$ " X $\frac{3}{8}$ " O.D. X .175" I.D. Pls. Spacer (Gray)	254-5000-07			

NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE P/N REQUIRED.

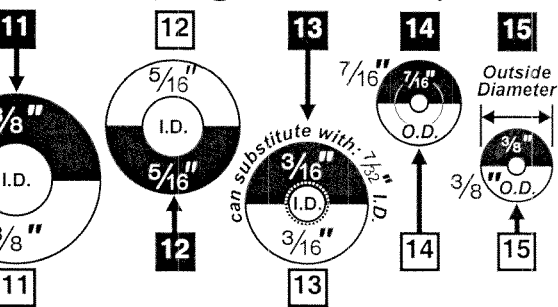
Parts Identification

Playfield - Rubber Parts Black ■, White □ & Blue ■ (Rings Actual Size) †



Items 1-13 are measured by the Inside Diameter (I.D.). Items 1-9 and 11 are approximately 1/4" thick. Items 10, 12-15 are approximately 3/16" thick. Item 13 can also be a 7/32" I.D. Ring. The size is imprinted on all Rings except for Items 14-15 (7/16" O.D. & 3/8" O.D.). Use this page as a guide to measure rings where the size imprint or mark does not exist. Size 2 1/4" I.D. (Black or White) was never used. Choose a Ring Size +/- 1/4" I.D. if required.

Note: Sizes larger than 3" I.D. currently available in Black Only (Not Used): 3 1/2" (545-5348-11); 4" (-12); 4 1/2" (-13); 5" (-14); 5 1/2" (-15); 6" (-16). Sizes Not Shown on this page, listed in the Parts Table below or are noted with N/U (Not Used) are currently not available.



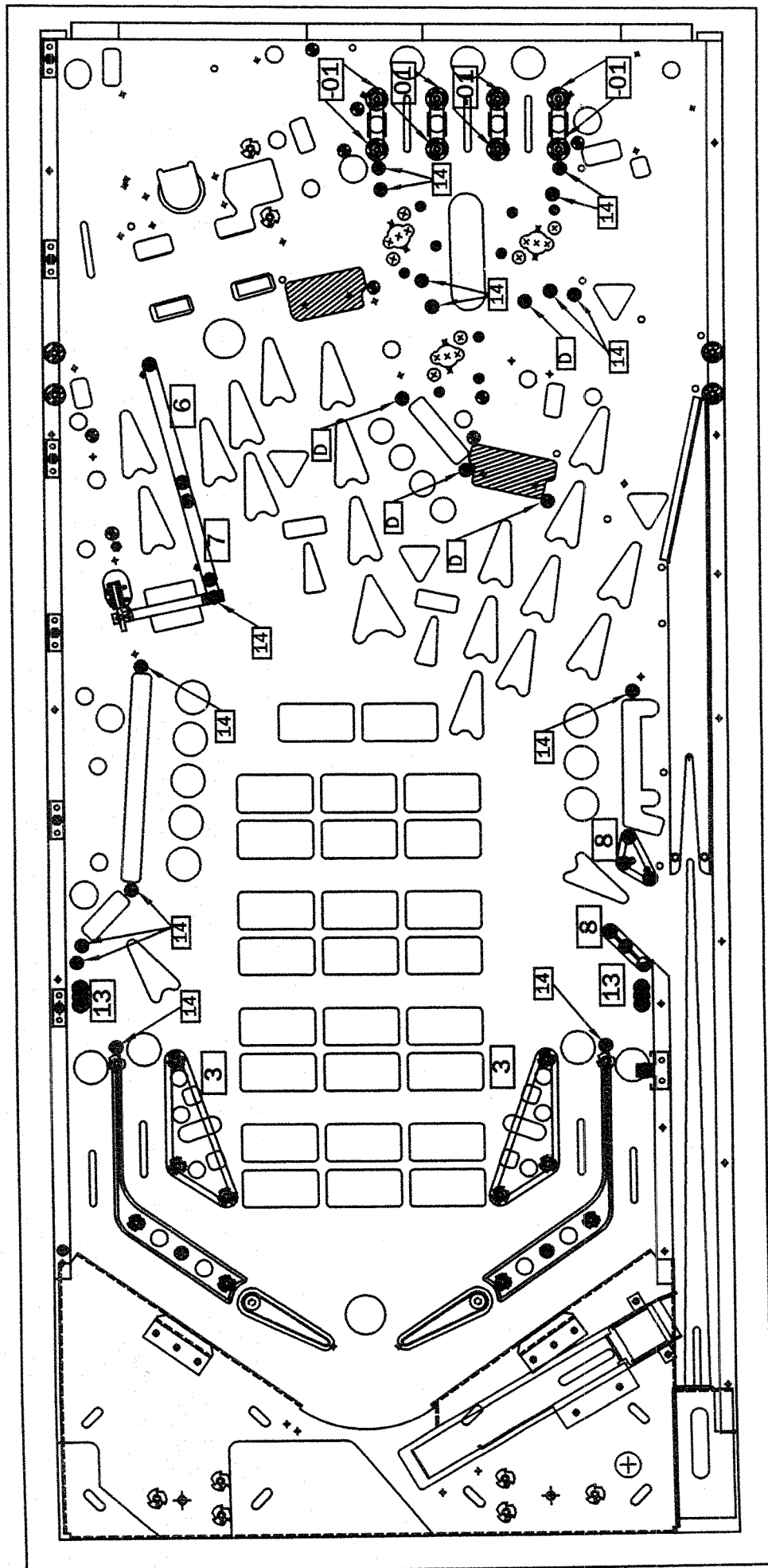
Nr.	RUBBER RINGS	QTY.	SPI PART Nr.
1	3" I.D. Rubber Ring BLACK		545-5348-10
	3" I.D. Rubber Ring WHITE		545-5348-60
2	2 3/4" I.D. Rubber Ring BLK		545-5348-20
		N/U	
3	2 1/2" I.D. Rubber Ring BLK	2	545-5348-09
	2 1/2" I.D. Rubber Ring WHT		545-5348-59
4	2" I.D. Rubber Ring BLACK		545-5348-08
	2" I.D. Rubber Ring WHITE		545-5348-58
5	1 3/4" I.D. Rubber Ring BLK	1	545-5348-21
	1 3/4" I.D. Rubber Ring WHT	N/U	545-5348-71
6	1 1/2" I.D. Rubber Ring BLK	1	545-5348-07
	1 1/2" I.D. Rubber Ring WHT		545-5348-57
7	1 1/4" I.D. Rubber Ring BLK		545-5348-06
	1 1/4" I.D. Rubber Ring WHT		545-5348-56
8	1" I.D. Rubber Ring BLACK	1	545-5348-05
	1" I.D. Rubber Ring WHITE		545-5348-55
9	3/4" I.D. Rubber Ring BLACK	1	545-5348-04
	3/4" I.D. Rubber Ring WHITE		545-5348-54
10	7/16" I.D. Rubber Ring BLK		545-5348-18
	7/16" I.D. Rubber Ring WHT		545-5348-68
11	3/8" I.D. Rubber Ring BLACK		545-5348-03
	3/8" I.D. Rubber Ring WHITE	N/U	545-5348-53
12	5/16" I.D. Rubber Ring BLK	4	545-5348-02
	5/16" I.D. Rubber Ring WHT		545-5348-52
13	3/16" I.D. Rubber Ring BLK	6	545-5348-01
	3/16" I.D. Rubber Ring WHT		545-5348-51
14	7/16" O.D. Rubber Ring BLK	58	545-5348-17
	7/16" O.D. Rubber Ring WHT		545-5348-67
Note: Item 14, 7/16" O.D. Black Rings (Qty. 44 of 49) are used to cushion the Bayonet Sockets under the playfield (between bracket & playfield).			
15	3/8" O.D. Rubber Ring BLK		545-5348-19
	3/8" O.D. Rubber Ring WHT		545-5348-69
16	Small Flipper BLACK Ring (Soft Duro)	1	545-5207-00
	Small Flipper RED Ring (Soft Duro)		545-5207-22
	Large Flipper BLACK Ring (50 Duro)	2	545-5277-00
	Large Flipper YELLOW Ring (50 Duro) (use -06 40 Duro)		545-5277-04
17	Large Flipper WHITE Ring (50 Duro)		545-5277-08
	Large Flipper RED Ring (Soft Duro)		545-5277-22

Take Note:

For Blue Rubber Pads, see the next page and/or the Blue Pages for the assembly the pads are found on for the part number.

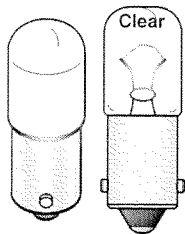
Nr.	RUBBER BUMPER PADS	QTY.	SPI PART Nr.
A*	Bumper BLK Pad (Lg. w/ grommet)		545-5428-00
Item A are located on Flipper Assemblies. See next page for location.			
B*	Bumper BLK Pad (Sm. w/ grommet)	6	545-5105-00
Item B are located on multiple assemblies. See next page for location.			

Nr.	RBR. BUMPER POST SLVS.	QTY.	SPI PART Nr.
D*	Bumper BLACK Post Sleeve (Tall)		545-5308-00
Item D in RED use 545-5308-22; Item D in WHITE use 545-5308-08.			
E*	Bumper Post Sleeve (Short)		545-5151-00

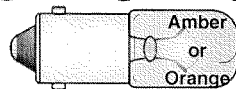
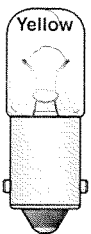
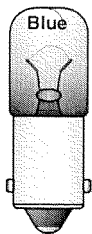
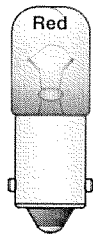


Playfield Top & Bottom - Small Bayonet Sockets & Bulbs ■ (Actual Size) †

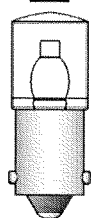
A1



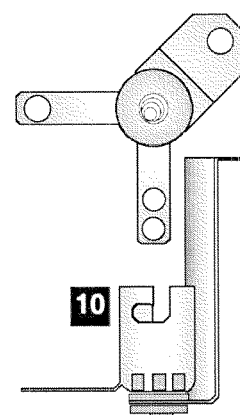
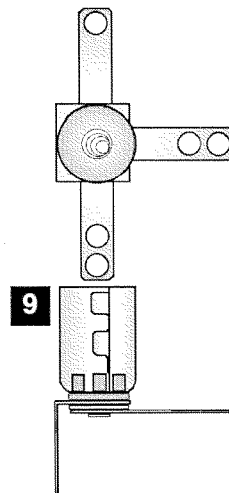
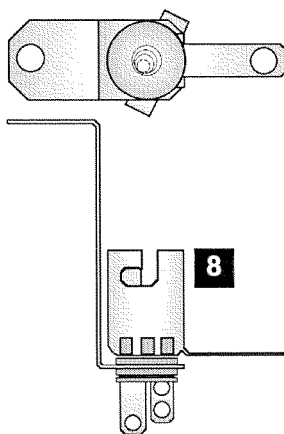
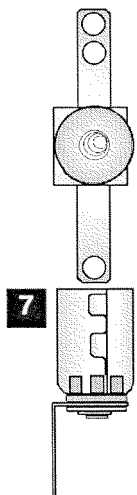
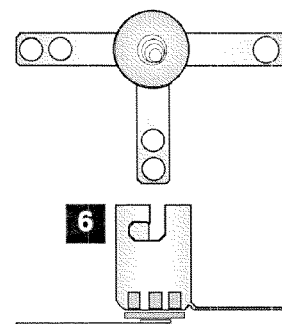
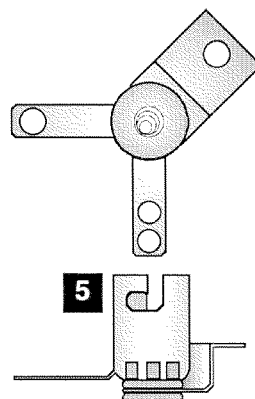
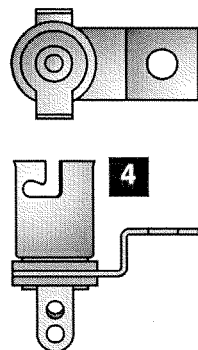
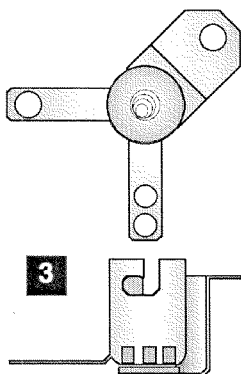
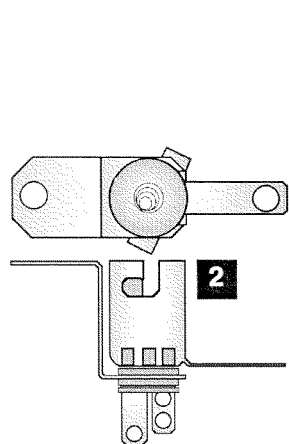
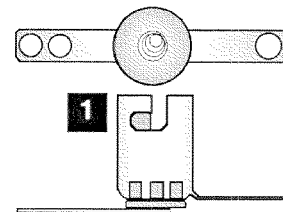
#44
Bulbs



B



LED Bulb
(Bayonet Style)



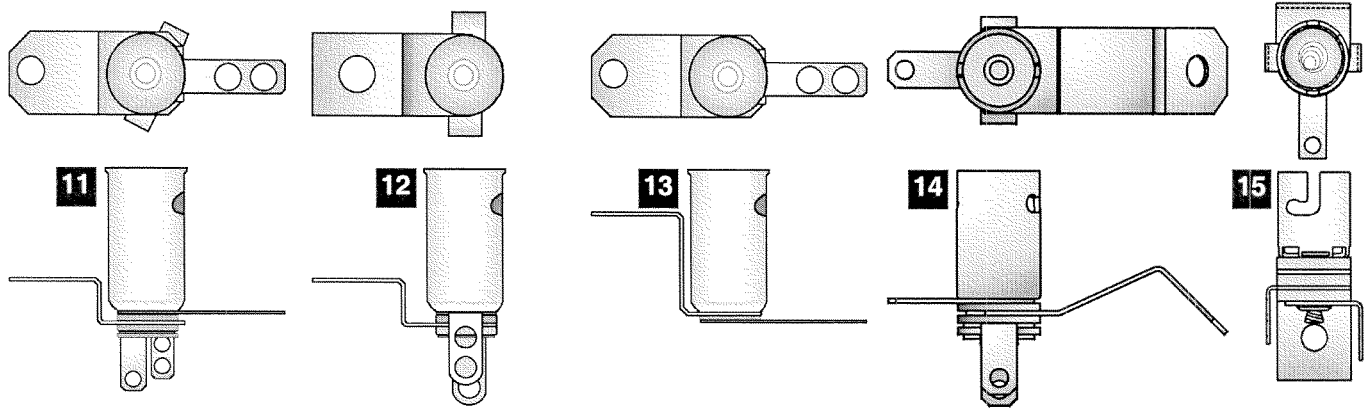
Parts Identification

Nr.	BULBS (#44)	SPI PART Nr.	Nr.	BULBS (LED & #455)	SPI PART Nr.
A	#44 Bulb (Clear) Heavy Filament	165-5000-44-HF	B	LED Module (WHT) (12.8v 20-25mA) Bynt.	112-5023-08
	#44 Bulb (replace -XX w/color below)	165-5053-XX-HF		Item B Note: Different Colors may be available ~	
	Item A Note: Amber (165-5053-03-HF); Green (165-5053-04-HF); Yellow (165-5053-06-HF); Red (165-5053-02-HF); Blue (165-5053-05-HF); Orange (165-5053-07-HF)			Red (112-5023-02); Amber (112-5023-03); Green (112-5023-04); Blue (112-5023-05);	

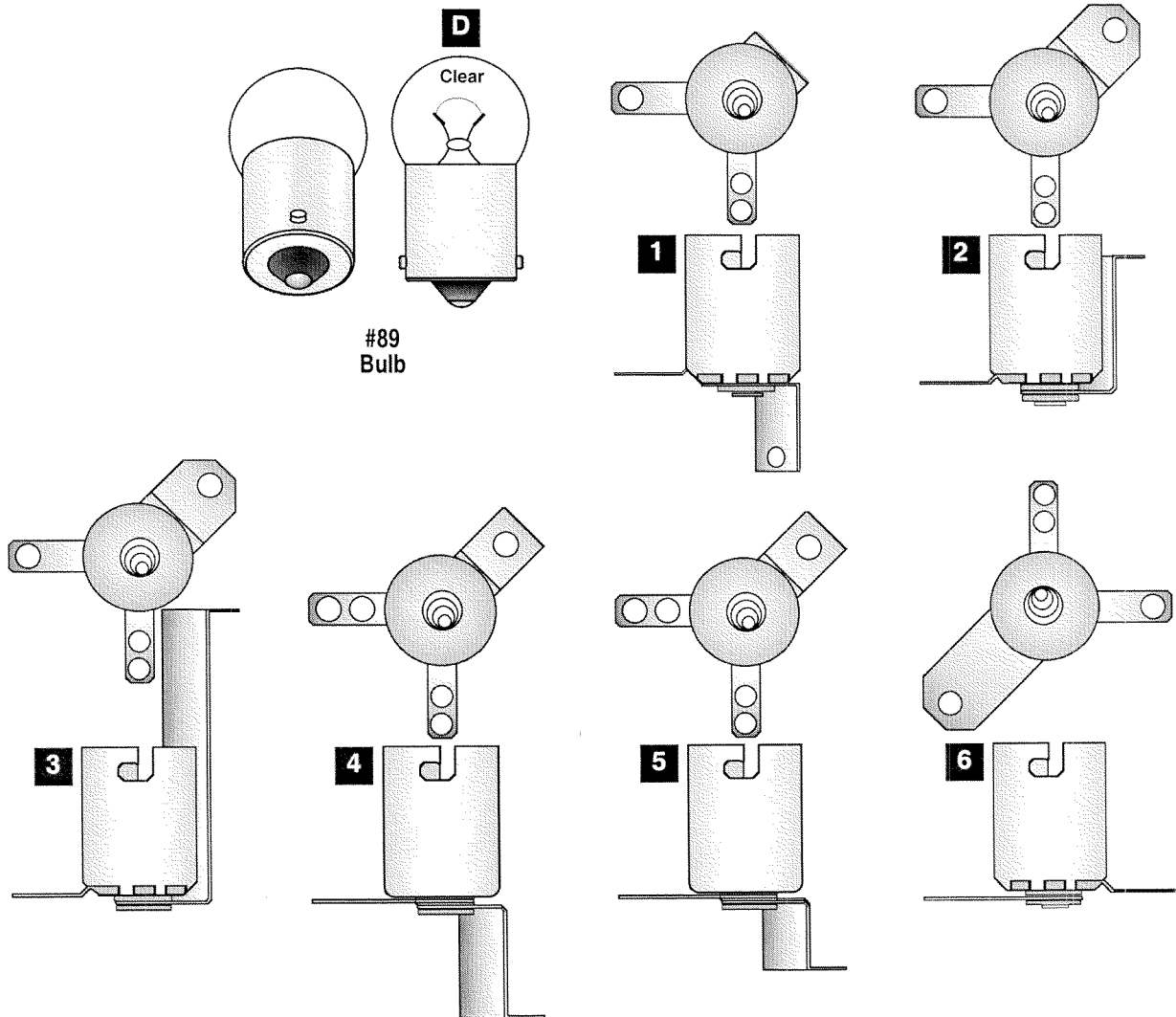
Nr.	SMALL BAYONET SOCKETS	SPI PART Nr.	Nr.	SMALL BAYONET SOCKETS	SPI PART Nr.
1	2-Lug Staple Down Socket	077-5000-00	9	3-Lug Laydown Socket (3 Lugs Flat)	077-5006-00
2	3-Lug Stand-Up Socket (Med. Brkt.)	077-5008-00	10	2-Lug Stand-Up Socket (Tall Bracket)	077-5005-00
3	2-Lug Stand-Up Socket (Med. Brkt.)	077-5002-00	11	3-Lug Stand-Up Long Shell Socket	077-5013-00
4	2-Lug Stand-Up Socket (Short Brkt.)	077-5223-00	12	2-Lug Stand-Up Lg. Shell Socket (Gls)	077-5031-00
5	2-Lug Stand-Up Sckt. (Short Bracket)	077-5002-31	13	1-Lug S-U Lg. Shell Sckt. (Med. Brkt.)	077-5012-00
6	3-Lug Staple Down Socket	077-5001-00	14	3-Lug S-U Lg. Shell Sckt. (45° Brkt.)	077-5035-00
7	2-Lug Laydown Socket	077-5003-00	15	3-Lug Laydown Socket (2 Lugs Bent)	077-5032-00
8	3-Lug Stand-Up Socket (Tall Bracket)	077-5009-00			

NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.

Playfield Top & Bot. - Small Bayonet Sockets & Bulbs ■ (Actual Size) † Continued



Playfield Bottom - Large Bayonet Sockets & Bulbs ■ (Actual Size) †

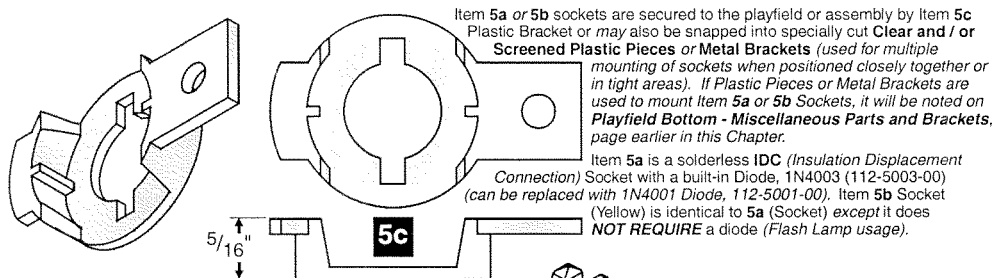
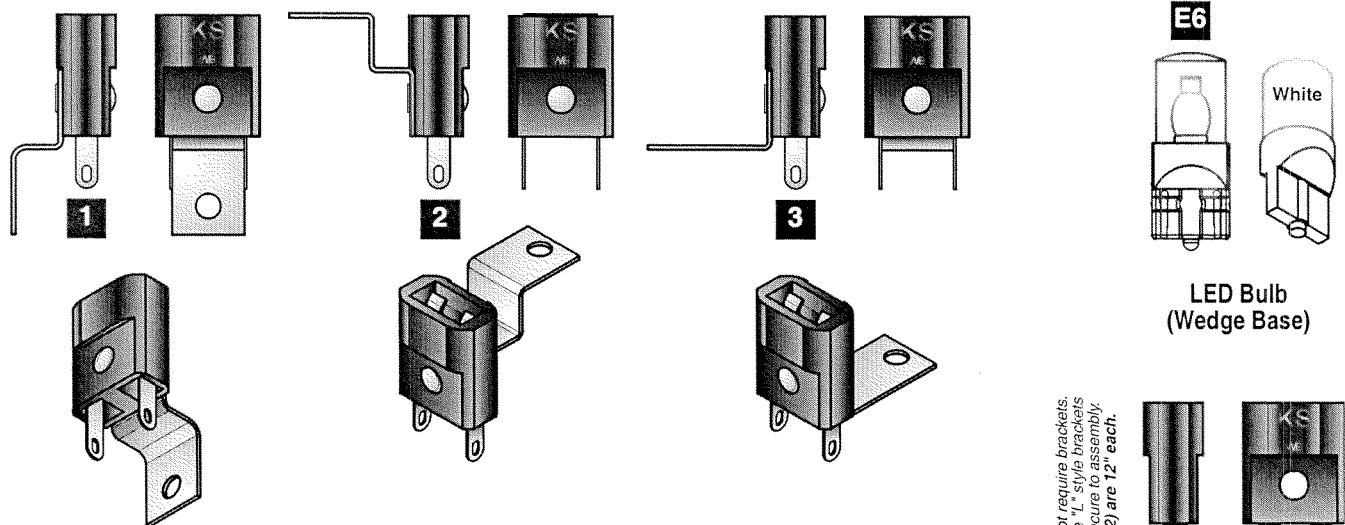
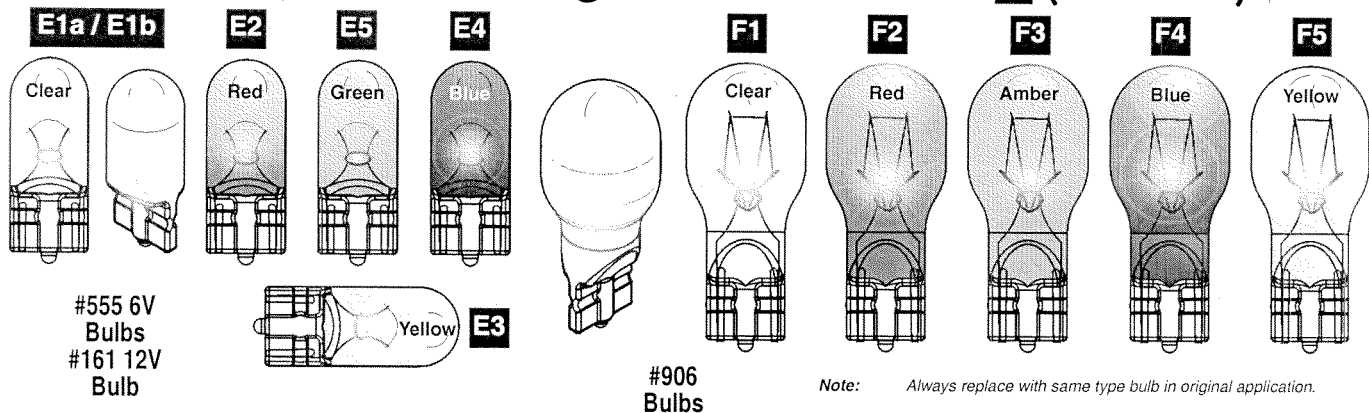


Parts Identification

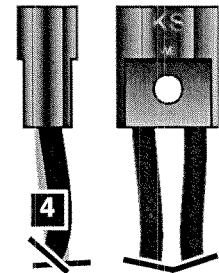
Nr.	BULBS (#89)	SPI PART Nr.	Nr.	LARGE BAYONET SOCKETS	SPI PART Nr.
D	#89 Bulb Heavy Filament	165-5000-89-HF	1	2-Lug Laydown Standard Socket	077-5100-00
			2	2-Lug Stand-Up Short Socket	077-5101-00
			3	2-Lug Stand-Up Long Socket	077-5102-00
			4	2-Lug Stand-Up Rev. Mount Socket	077-5103-00
			5	2-Lug Stand-Up Rv. Mnt. Short Socket	077-5106-00
			6	2-Lug Straight Leg Socket	077-5107-00

NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.

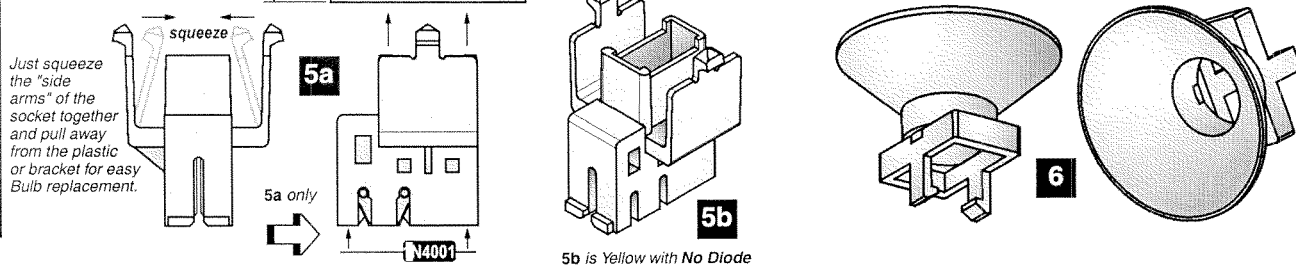
Playfield Top & Bottom - Wedge Base Sockets & Bulbs (Actual Size) †



Item 4 Socket does not require brackets. Old stock may include "L" style brackets (each side), do not secure to assembly. Black Wires (Qty. 2) are 12" each.



Parts Identification



Nr.	BULBS (#555)	SPI PART Nr.	Nr.	BULBS (LED & #906)	SPI PART Nr.
E1a	#555 Wedge Base Bulb (Clear)	165-5002-00	E6	LED Module (WHT) (5v - 6.3v) Wedge Base	112-5024-08
E2-E5	#555 Wedge Base Bulb (Multi-Color)	165-5054-XX	Item E6 Bulb Note :	Typically used with Item 4 Socket in Pop Bumpers.	
Item E2-E5 Bulb Note:	Different Colors available (not used in this game) - Red (165-5054-02); Green (165-5054-04); Blue (165-5054-05); Yellow (165-5054-06);		F	#906 Wedge Base Bulb (Clear)	165-5004-00
E1b	#161 12V Wedge Base Bulb (Clear)	165-5032-00	Item F Note:	Different Colors available (not used in this game) - Red (165-5004-02); Amber (165-5004-03); Blue (165-5004-05); Yellow (165-5004-06)	

Nr.	WEDGE BASE SOCKETS	SPI PART Nr.	Nr.	WEDGE BASE SOCKETS	SPI PART Nr.
1	Wedge Base Socket (Laydown)	077-5026-01	5a	IDC Snap-On Socket (Biege)	077-5216-00
2	Wedge Base Socket (Offset)	077-5029-00	5b	IDC Snap-On Socket No Diode (Yel.)	077-5216-01
3	Wedge Base Socket (Laydown GI)	077-5030-00	5c	5/16" Ht. Bracket (White)	545-5760-18
4	W.B. Socket (Bumpers/Special App.)	077-5206-00	6	Light Reflector (Silver Plst.) REF540N	545-5409-01
			Note Item 6 : Typically used with Item 1 (but will fit on any similar Wedge Base Socket).		

NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER). COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.

Optional Kits available through your Distributor:

Flipper Rebuild Kit (Left) 500-6307-10

Flipper Base Plate Kit (Left) 515-6617-01

Kit includes: Flipper Base Plate (Left) pre-threaded with securing hardware; see the Flipper Drawing for view.

Flipper Rebuild Kit (Right) 500-6307-00

Flipper Base Plate Kit (Right) 515-6617-00

Kit includes: Flipper Base Plate (Left) pre-threaded with securing hardware; see the Flipper Drawing for view.

Pinball Location Maintenance Standard Kit (for 24 Pinball) 502-6002-A7

Standard Kit includes : 8 oz. Novus Wax #2 Fine (Red) (675-0003-01), Cloth, Rubber Rings (used above playfield), Bulbs (Bulb quantities vary and is limited to 25 per type), Fuses (1/per type) and 4 Pinballs. **Note:** Quantities, sizes and contents subject to change without notice.

Pinball Location Maintenance Deluxe Kit (for 24 Pinball) 502-6003-A7

Deluxe Kit includes : Pinball Location Maintenance Standard Kit as described above plus a quantity of Flipper Rebuild Kits. **Note:** Quantity varies which equals the same quantity of flippers used in this game.

▲ THIS GAME KIT INCLUDES (3) FLIPPER REBUILD KITS ▲

Plastics*Kit (for 24 Pinball) 803-5000-A7

Plastics Kit includes: Plastic Sets (830-6079-XX)

Decals*Kit (for 24 Pinball) 802-5000-A7

Decals Kit includes: Decal Set (820-6417-XX)

Mylar*Kit (for 24 Pinball) 802-5001-A7

Mylar Kit includes: Ball Drop (820-5815-00); Pop Protector (820-6418-00)

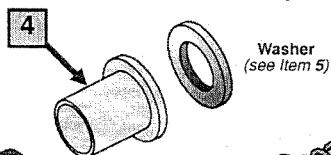
***Attention:** No individual Plastic or Decal can be ordered separately, unless noted otherwise. Plastics & Decals are subject to change without notice during and / or after production. Key Fobs subject to availability and may or may not be included in the plastic set. All designs, shapes & pieces used subject to change without notice. Kit contents subject to change. Service Bulletin(s) will announce any critical changes, if warranted. The last 2-digits shown on plastics or decals are for reference only.

Ball Shooter (Plunger) Assembly, 500-6146-00-04 (Items 1-6)

Securing Hardware for Items 3 & 5 are also shown separated from the Ball Shooter (Plunger) Assembly for clarity.

Assemble into Housing in the following order:

Rod Assembly
(see Item 2),
Short Spring
(see Item 3),
Washer
(see Item 3),
Bushing
(see Item 4)
and then ...



and then ...

Bushing
(see Item 4),
Washer
(see Item 5),
Long Spring
(see Item 5),
Washer
(see Item 5),
Retaining Ring
(see Item 5),
Plunger Tip
(see Item 6).

Nr.	BALL SHOOTER PARTS	QTY.	SPI PART Nr.
1	Housing Asm. + Bushings (Item 4)	1	535-5067-02
Item 1 is secured to the Cabinet by: Support Plate [not included with Item 1 or Assembly] (535-5027-00), #10-32 X 1/2" PPH (Sems) Zinc TF (Qty. 3) (237-6033-00), #10 Split Lock Washer (Qty. 3) (244-5003-00) and #6 X 1/2" HWH AB (Zinc) Red (Qty. 2) (234-5001-02)			
2	Rod Assembly (with Black Knob)	1	515-6557-00
3	Comp. Spring (Short) (Knob Side)	1	266-5010-00
Item 3 is sandwiched onto Item 2 (Front Side) between the knob and by: Washer, 3/8" I.D. X 5/8" O.D. X 1/16" (242-5014-00)			
4	Bushing, 3/8" I.D. (Oilite)	2	280-5010-00
Item 4 is included with Item 1, Housing, (1 @ the front; 1 @ the back) as shown.			
5	Comp. Spring (Long) [GREEN, .035" ø]	1	266-5001-04
Item 5 is sandwiched onto Item 2 (Rubber Tip Side) by: Washer, 3/8" I.D. X 5/8" O.D. X 1/16" (Qty. 1/per side) (242-5014-00) and Retaining Ring, 3/8" ø Shaft (270-5012-00)			
6	Rubber (Plunger) Tip (Black 50 Duro)	1	545-5276-00

Ordering Note: If 500-6146-00-04 is unavailable, order the individual part(s) actually required. ... Identical to 500-6146-00-07 has Comp. Spring [Orange, .038" ø] (266-5001-07) or 500-6146-00-05 has Comp. Spring [Blue, .031" ø] (266-5001-05).

Autoplunger Arm Weld Asm., 500-6091-00 (Items 1-5), Autoplunger Coil Assembly, 500-6092-02-ND (Items 6-9) and Shooter Lane Switch Assembly, 500-6096-00 (Items 10-12)

Nr.	AUTOPL. ARM WELD PARTS	QTY.	SPI PART Nr.
1	Arm Weld Assembly	1	515-6526-00
Item 1 is secured to Item 2 by: Retaining Ring, 1/4" ø Shaft (Qty. 1) (270-5002-00)			
2	Autoplunger Fulcrum	1	535-7697-00
3	Nyliner, 1/4" (Thomson #411-FF)	2	545-5423-00
4	Plunger & Link Assembly	0	511-5183-00
Item 4 is secured to Item 1 by: Retaining Ring, 1/4" ø Shaft (Qty. 1) (270-5002-00) For Individual Items use : Plunger 1.81" Lg. (530-5025-05), Plunger Link (545-5293-00) and Roll Pin 1/8" ø x 5/8" Lg. (251-5008-00)			
5	Compression (Return) Spring	1	266-5020-00
(ASM. REF. 500-6091-00, Items 1-5)			

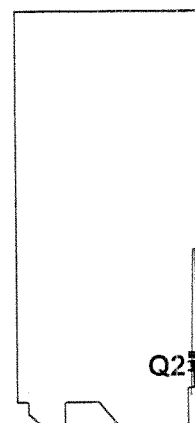
Nr.	AUTOPLNGR. COIL PARTS	QTY.	SPI PART Nr.
6	Autoplunger Coil Bracket Assembly	1	515-6527-00
Items 1 & 6 are secured below the P/F by: #8 X 1/2" SHWH AB (Zc.) (Qty. 9) (234-5101-00)			
7	Coil Retainer Bracket	1	535-5203-03
Item 7 is secured to Item 6 by: #8-32 X 1/4" PPH MS (Sems) Zinc (Qty. 2) (232-5300-00)			
8	Coil, 24-940 [NO DIODE]	1	090-5036-ND
COIL DOES NOT REQUIRE A DIODE. SEE COIL NOTE BELOW FOR DETAILS.			
9	Coil Sleeve	1	545-5031-00
(ASM. REF. 500-6092-02-ND, Items 6-9)			

Nr.	SWITCH PARTS	QTY.	SPI PART Nr.
10	Switch (for Shooter Lane)	1	180-5157-00
Switch has a Diode (1N4004) (112-5003-00). Can be replaced with (1N4001) (112-5001-00).			
11	Switch Mounting Bracket	1	535-6173-00
Item 11 is secured to Playfield by: #6 X 1/2" SLT HWH AB (Zinc) (Qty. 2) (234-5001-02)			
12	Switch Body Protect Plate	14	535-6539-00
Item 12 is secured to Items 10-11 by: #2-56 X 1/2" Unslotted Ser. HWH #4 Head TR3 Black (Qty. 2) (237-5937-02) and #2-56 Hex Nut (Qty. 2) (240-5301-0) (ASM. REF. 500-6096-00, Items 10-12)			

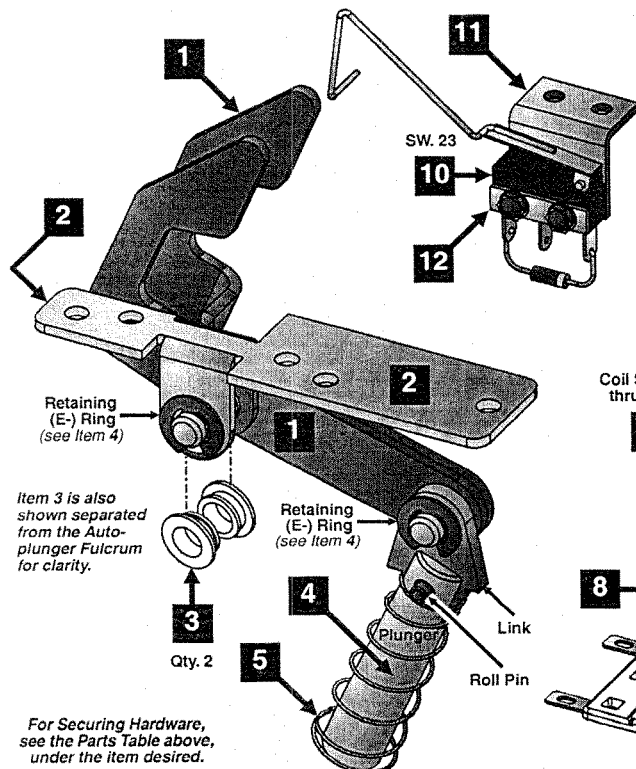
For Securing Hardware, see the Parts Table above, under the item desired.

Take Note:

Coil Note: NO DIODE ON LUGS. If replacing with a coil of the same gauge and turn & it has a diode on it, remove it before using.



Assemblies & Ramps



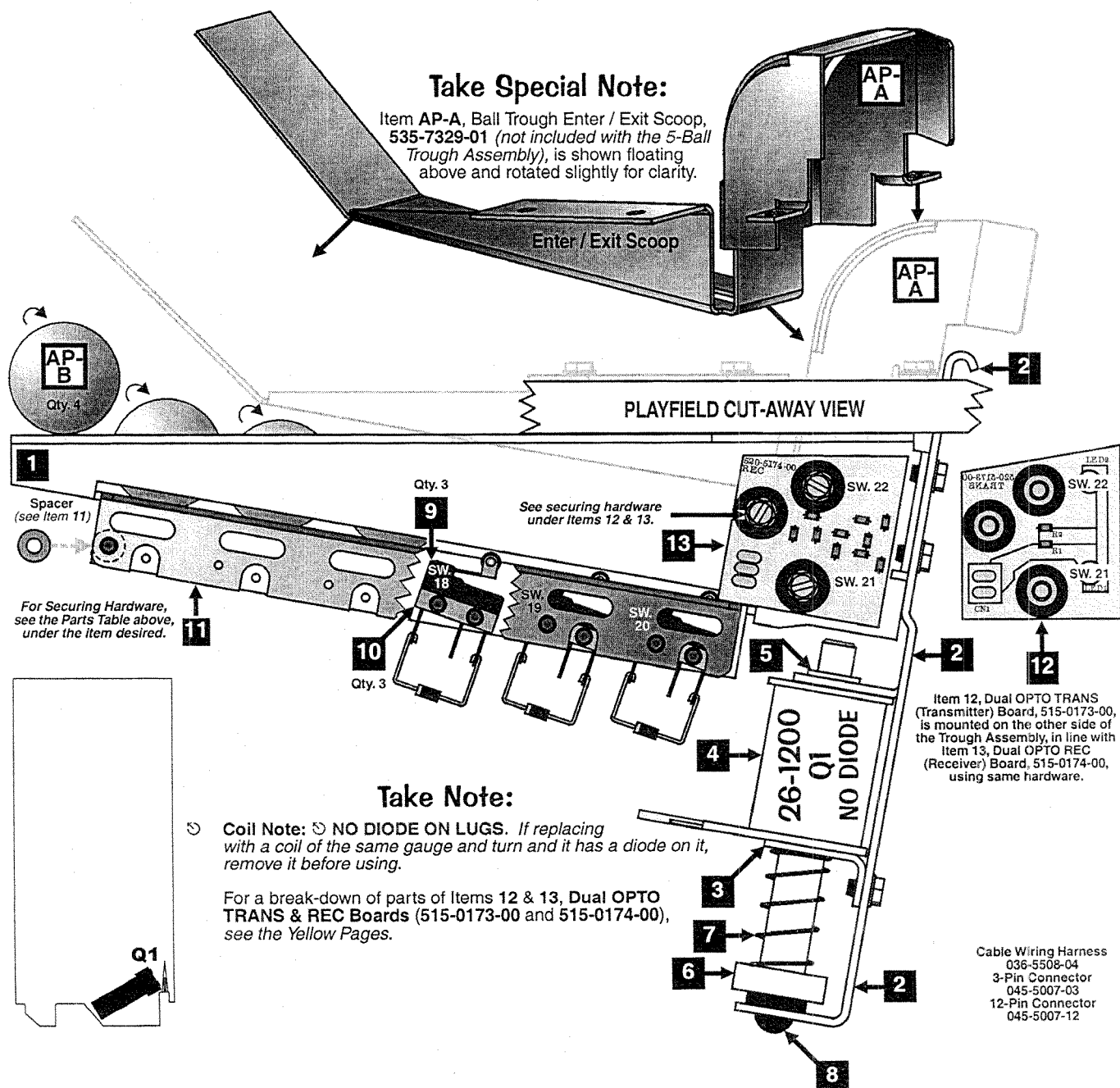
Item 3 is also shown separated from the Autoplunger Fulcrum for clarity.

For Securing Hardware, see the Parts Table above, under the item desired.

4-Ball Trough Assembly, 500-6318-24-ND (Items 1-13) and Associated Parts: See Parts Table Below.

Ordering Note: Identical to 500-6318-14 with exceptions, see note below Item 13 (Parts Table).

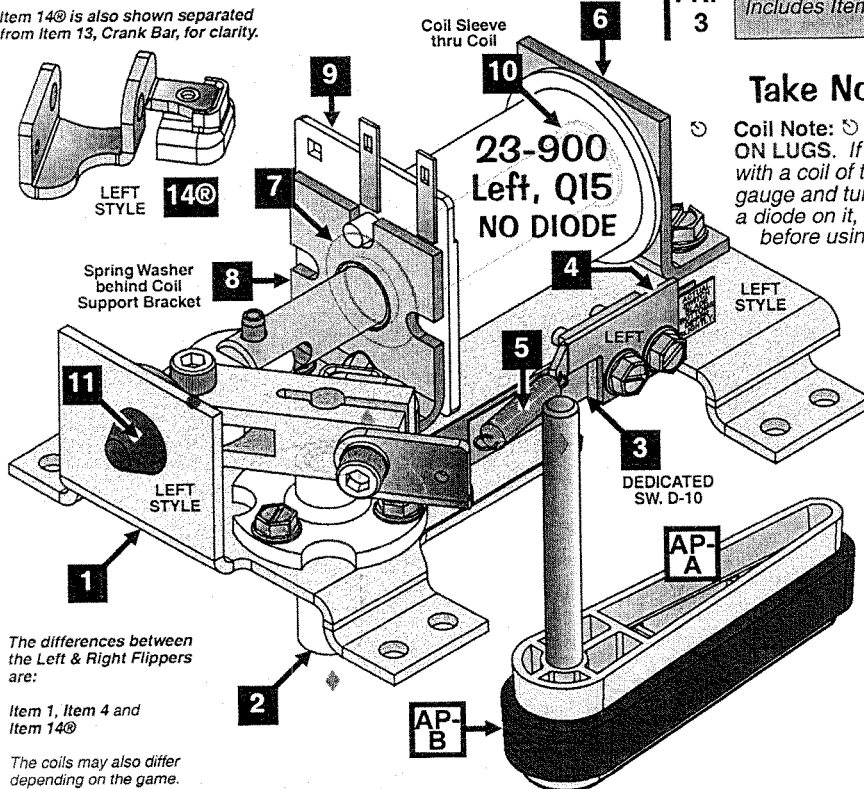
Nr.	4-BALL TROUGH PARTS	QTY.	SPI PART Nr.	Nr.	4-BALL TROUGH PARTS	QTY.	SPI PART Nr.
1	Ball Trough Outhole Mounting Bracket	1	515-6580-01	11	Trough Ball Guide Plate	1	535-7801-00
Item 1 is secured below the playfield by: #8 X 1/2" SHWH AB (Zc.) (Qty. 4) (234-5101-00)				Item 11 is secured to Item 1 by: 1/4" X 5/16" X .144" I.D. Spacer Tap. (Qty. 1) (254-5014-03) and #2-56 X 1/2" HWH (Ser) UNS #4HD TR3 BO (Qty. 4) (237-5937-02)			
2	Coil Mounting Bracket	1	535-7330-01	12	Dual OPTO TRANS Board Assembly	1	515-0173-00
Item 2 is secured to Item 1 by: #8-32 X 3/8" HWH Swage (Sr.) Zinc (Qty. 4) (237-5975-00)				Items 12 & 13 are secured by: #6-32 X 5/8" HWH Swg (Ser) Zc. (Qty. 3/per) (237-5976-04)			
3	Coil Retaining Bracket	1	535-5203-03	13	Dual OPTO REC Board Assembly	1	515-0174-00
Item 3 is secured to Item 2 by: #8-32 X 1/4" SHWH (Serr) Zinc (Qty. 2) (237-5975-04)				For Individual Items use: Dual OPTO Transmitter Board (Qty. 1) (520-5173-00), Dual OPTO Receiver Board (Qty. 1) (520-5174-00), OPTO PCB Tube Spacer (Brass) (Qty. 3/per) (530-5308-02) and OPTO PCB Rubber Grommet (Qty. 3/per) (545-5518-00)			
4	Coil, 26-1200 [NO DIODE]	1	090-5044-ND	Ordering Note: If 500-6318-24-ND is unavailable, order the individual part(s) actually required. This assembly is identical to 500-6318-14-ND, -15 or -25 except for the quantity of Items 9 & 10 (Qty. 4/per on 5-Ball Trough) and Item 11, required when a Magnet Mech. is used in the game. -ND means no diode on Item 4, Coil, 26-1200.			
COIL DOES NOT REQUIRE A DIODE. SEE ☺ COIL NOTE BELOW FOR DETAILS.				ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY			
5	Coil Sleeve (Short) (Formost #10-7077)	1	545-5076-01	Nr.	ASSOCIATED PART(S)	QTY.	SPI PART Nr.
6	Steel & Nylon Plunger Asm. (3.57")	1	515-7309-01	AP-A	Ball Trough Enter / Exit Scoop	1	535-7329-01
7	Compression (Return) Spring	1	266-5020-00	Item AP-A secured to the playfield by: #8 X 1/2" SHWH AB (Zinc) (Qty. 4) (234-5101-00).			
8	Rubber Bumper (Grommet)	1	545-5105-00	AP-B	Steel Balls (1-1/16" ø)	4	260-5000-00
9	Micro Switch (Roller Actuator, Lite-Force)	3	180-5119-02				
Item 9 requires: Heat Shrink Tubing 1/8" ø PUI-24 (Qty. 1"/per) (605-5006-00)							
Switch has a Diode (1N4004) (112-5003-00). Can be replaced with (1N4001) (112-5001-00).							
10	Switch Body Protect Plate	3	535-6539-00				



Flipper (Left) Assembly, 500-6543-15-ND (Items 1-15) and Associated Parts: Yellow Flipper Bat & Shaft Asm., 515-5133-06-06 (Items AP-A / AP-B)

Nr.	FLIPPER (LEFT) PARTS	QTY.	SPI PART Nr.
1	Flipper Base Plate (LEFT)	1	See FRP1
Item 1 is secured below by: #8 X 1/2" SHWH AB (Zinc) (Qty. 8) (234-5101-00) Ordering Note: Individual Part (535-7275-01) is not prethreaded, see Item FRP1.			
2	Flipper Bat Bushing (White Plastic) .25" ø I.D.	1	545-5070-00
Item 2 is secured to Item 1 by: #6-32 X 3/8" HWH Swage (Ser.) Zc. (Qty. 3) (237-5976-02)			
3	Power (EOS / End-of-Stroke) Switch	1	180-5149-00
Item 3 is secured to Item 1 by: #6-32 X 5/8" HWH Swage (Ser.) Zc. (Qty. 2) (237-5976-04)			
4	Sw. Plate/Spring Return Brkt. (LEFT)	1	535-7354-01
5	Flipper Return Spring	1	265-5035-00
6	Coil Stop Bracket Sub-Assembly	1	515-6308-01
Item 6 is secured to Item 1 by: #10-32 X 3/8" SHWH Swage (Serr) Zinc (Qty. 2) (237-5985-00) and #10 Split Lock Washer (Qty. 2) (244-5003-00)			
7	Spring Washer (17/32" ID X 3/4" X 1")	1	269-5002-00
8	Coil Support Bracket	1	535-7356-00
Item 8 is secured to Item 1 by: #8-32 X 3/8" HWH Swage (Ser.) Zc. (Qty. 2) (237-5975-00)			
9	Coil, 23-900 [NO DIODE] BLUE	1	090-5020-30
COIL DOES NOT REQUIRE A DIODE. SEE COIL NOTE BELOW FOR DETAILS.			
10	Coil Sleeve	1	545-5388-00
11	Deflector Pad (Bumper)	1	545-5428-00
12	Flipper Plunger & Link Sub-Assy.	1	515-6304-03
For Individual Items use: Flipper Plunger (530-5349-01) and Plunger "Flipper" Link (545-5611-01) and is secured to the Plunger by: Bushing, .16" ø ID X .281" ø OD X .187" (Qty. 1) (530-5532-00) and Spiral Pin ø 5/32" X 3/4" Lg. (Qty. 1) (251-5015-02)			
13	Crank Bar (Pawl)	1	530-5070-02
Item 13 requires: Bushing, .192" ø ID X .312" ø OD X .195" (Qty. 1) (530-5139-00)			
14®	Switch Actuator (LEFT) Sub-Assy.	1	515-7257-01
For Individual Items use: Actuator & Spring Bracket (LEFT) (535-9038-01) and © Switch Actuator (White Plastic) (545-5612-00) and is secured to the Bracket by: Rivet, 1/8" ø X 1/4" Lg. (Qty. 1) (249-5003-00)			
15	Set Screw: #10-32 X 3/4" Socket Hd.	2	237-6144-00
Item 15 requires: #10-32 Nylon Stop Nut (Qty. 1) Flipper Link Side Only (240-5203-00) and #10 Split Lock Washer (Qty. 1) Switch Actuator Side Only (244-5003-00) Tool required for Item 15: 5/32" or 4mm Allen Wrench			

Item 14® is also shown separated from Item 13, Crank Bar, for clarity.

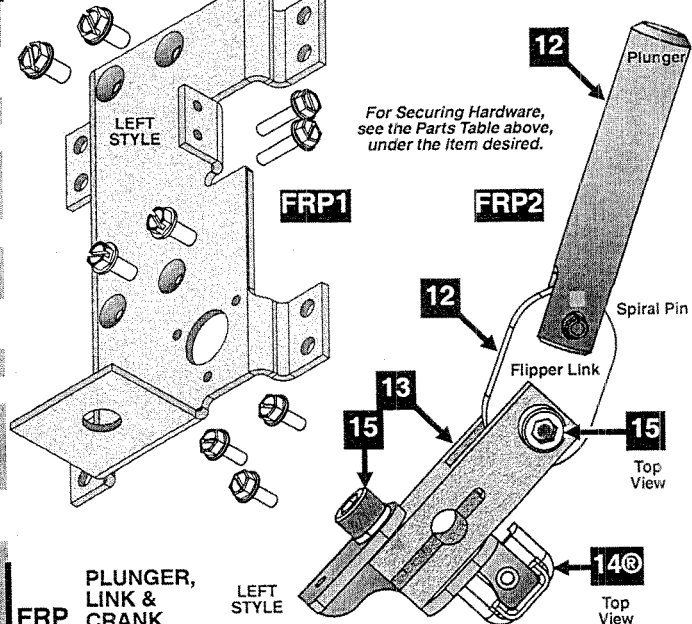


ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.

Nr.	ASSOCIATED PART(S)	QTY.	SPI PART Nr.
AP-A	YELLOW Flipper Bat & Shaft Asm. (Non-Knurled End) <i>without Rubber Ring</i>	1	515-5133-06-06
AP-B	Large Flipper BLACK Rubber Ring	1	545-5277-00

Flipper Rebuild Parts for Easier Installation, Save \$:

FRP1 FLIPPER BASE PLATE KIT (LEFT):
Includes Item 1 pre-threaded >+< Securing Hardware for Items 2, 3, 6 & 8. 515-6617-01

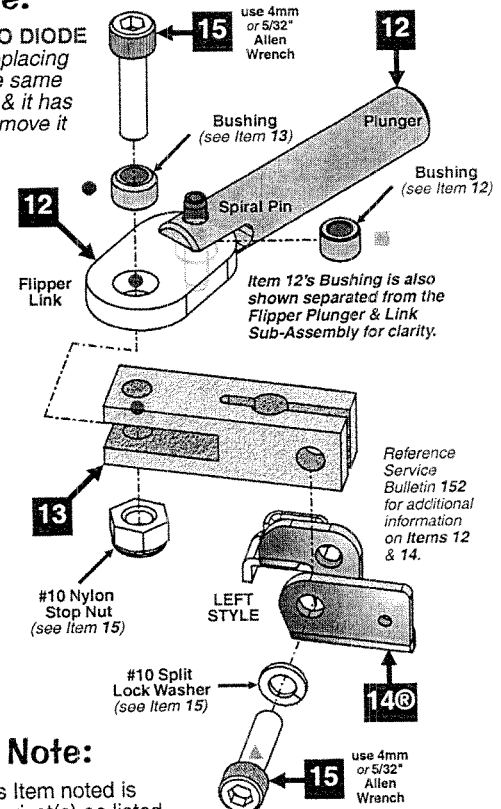


FRP2 PLUNGER, LINK & CRANK (LEFT STYLE) ASSEMBLY: Includes Items 12, 13, 14 & 15 (comes assembled). 515-7203-01

FRP3 FLIPPER (LEFT) REBUILD KIT:
Includes Items 6, 10 AND above FRP2 500-6307-10

Take Note:

Coil Note: NO DIODE ON LUGS. If replacing with a coil of the same gauge and turn & it has a diode on it, remove it before using.



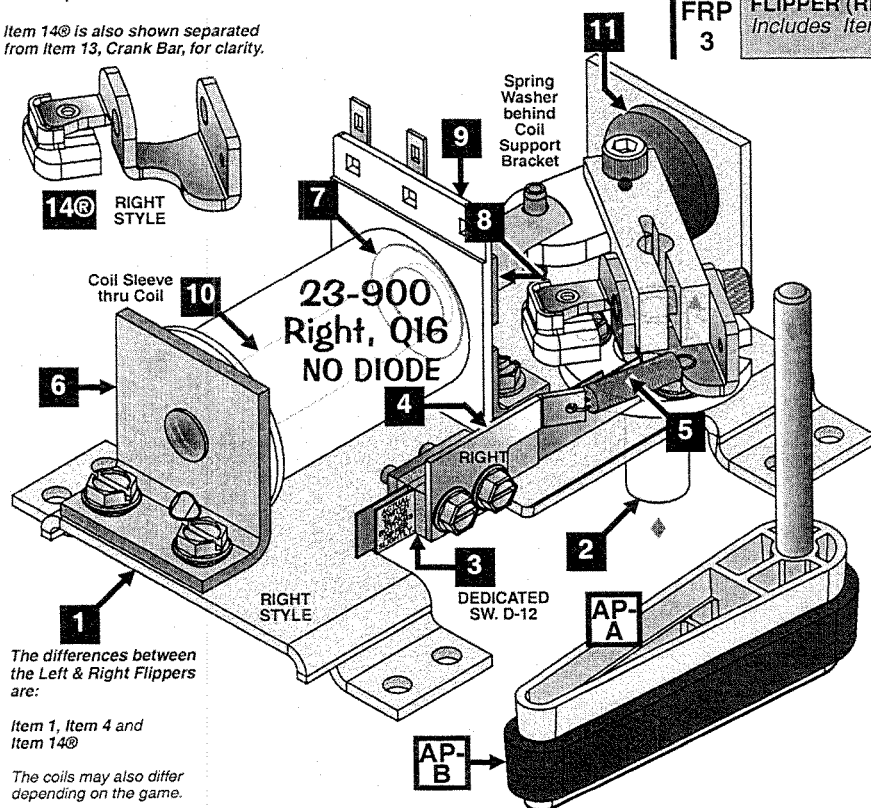
Take Note:

® "R" indicates Item noted is secured with rivet(s) as listed.

Flipper (Right) Assembly, 500-6543-05-ND (Items 1-15) and Associated Parts: Yellow Flipper Bat & Shaft Asm., 515-5133-06-06 (Items AP-A / AP-B)

Nr.	FLIPPER (RIGHT) PARTS	QTY.	SPI PART Nr.
1	Flipper Base Plate (RIGHT)	1	See FRP1
Item 1 is secured below by: #8 X 1/2" SHWH AB (Zinc) (Qty. 8) (234-5101-00) Ordering Note: Individual Part (535-7275-00) is not prethreaded, see Item FRP1.			
2	Flipper Bat Bushing (White Plastic) .25" ID.	1	545-5070-00
Item 2 is secured to Item 1 by: #6-32 X 3/8" HWH Swage (Ser.) Zc. (Qty. 3) (237-5976-02)			
3	Power (EOS / End-of-Stroke) Switch	1	180-5149-00
Item 3 is secured to Item 1 by: #6-32 X 5/8" HWH Swage (Ser.) Zc. (Qty. 2) (237-5976-04)			
4	Sw. Plate/Spring Return Brkt. (RIGHT)	1	535-7354-00
5	Flipper Return Spring	1	265-5035-00
6	Coil Stop Bracket Sub-Assembly	1	515-6308-01
Item 6 is secured to Item 1 by: #10-32 X 3/8" SHWH Swage (Ser.) Zinc (Qty. 2) (237-5985-00) and #10 Split Lock Washer (Qty. 2) (244-5003-00)			
7	Spring Washer (17/32" ID X 3/4" X 1")	1	269-5002-00
8	Coil Support Bracket	1	535-7356-00
Item 8 is secured to Item 1 by: #8-32 X 3/8" HWH Swage (Ser.) Zc. (Qty. 2) (237-5976-04)			
9	Coil, 23-900 [NO DIODE] BLUE	1	090-5020-30
COIL DOES NOT REQUIRE A DIODE. SEE COIL NOTE PREV. PAGE FOR DETAILS.			
10	Coil Sleeve	1	545-5388-00
11	Deflector Pad (Bumper)	1	545-5428-00
12	Flipper Plunger & Link Sub-Assy.	1	515-6304-03
For Individual Items use: Flipper Plunger (530-5349-01) and Plunger/Flipper Link (545-5611-01) and is secured to the Plunger by: Bushing, .16" ID X .281" OD X .187" (Qty. 1) (530-5532-00) and Spiral Pin (Qty. 1) (251-5015-02)			
13	Crank Bar (Pawl)	1	530-5070-02
Item 13 requires: Bushing, .192" ID X .312" OD X .195" (Qty. 1) (530-5139-00)			
14®	Switch Actuator (RIGHT) Sub-Assy.	1	515-7257-00
For Individual Items use: Actuator & Spring Bracket (LEFT) (535-9038-01) and ® Switch Actuator (White Plastic) (545-5612-00) and is secured to the Bracket by: Rivet, 1/8" x 1/4" Lg. (Qty. 1) (249-5003-00)			
15	Set Screw: #10-32 X 3/4" Socket Hd.	2	237-6144-00
Item 15 requires: #10-32 Nylon Stop Nut (Qty. 1) Flipper Link Side Only (240-5203-00) and #10 Split Lock Washer (Qty. 1) Switch Actuator Side Only (244-5003-00) Tool required for Item 15: 5/32" or 4mm Allen Wrench			

Item 14® is also shown separated from Item 13, Crank Bar, for clarity.

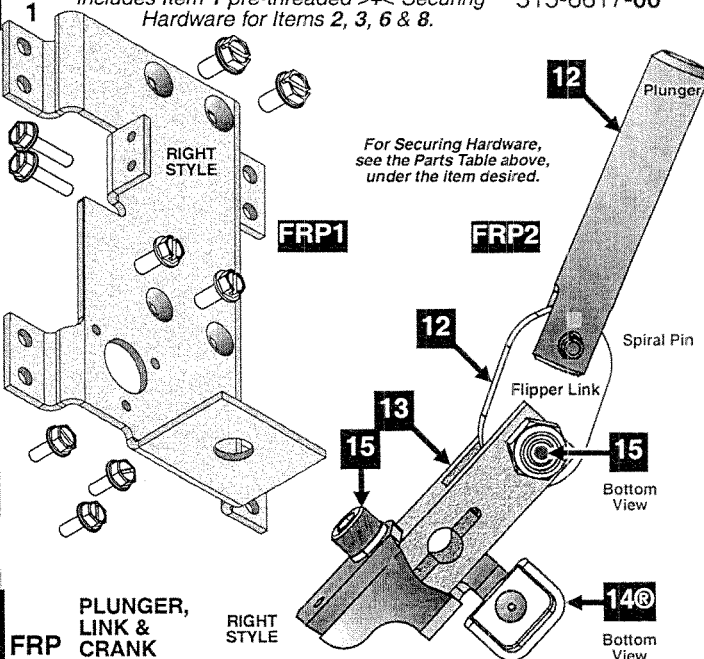


ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.

Nr.	ASSOCIATED PART(S)	QTY.	SPI PART Nr.
AP-A	YELLOW Flipper Bat & Shaft Asm. (Non-Knurled End) <i>without Rubber Ring</i>	1	515-5133-06-06
AP-B	Large Flipper BLACK Rubber Ring	1	545-5277-00

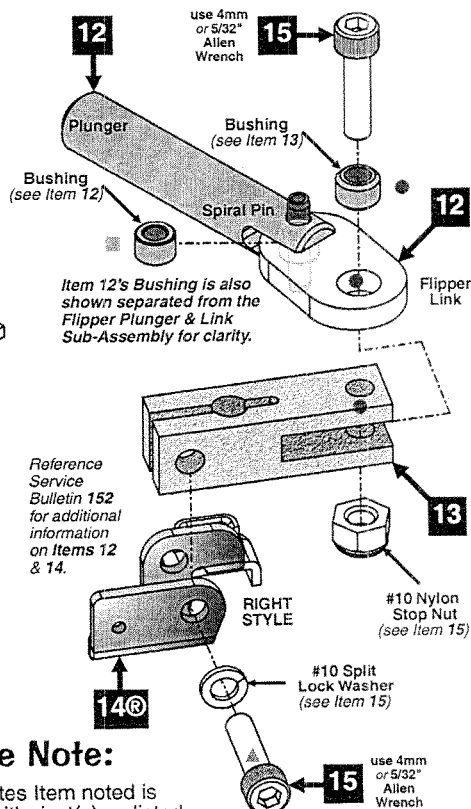
Flipper Rebuild Parts for Easier Installation, Save \$:

FRP 1 FLIPPER BASE PLATE KIT (RIGHT):
Includes Item 1 pre-threaded >+< Securing Hardware for Items 2, 3, 6 & 8. 515-6617-00



FRP 2 PLUNGER, LINK & CRANK (RIGHT STYLE) ASSEMBLY: Includes Items 12, 13, 14 & 15 (comes assembled). 515-7203-00

FRP 3 FLIPPER (RIGHT) REBUILD KIT:
Includes Items 6, 10 AND above FRP2 500-6307-00



Take Note:

® "R" indicates item noted is secured with rivet(s) as listed.

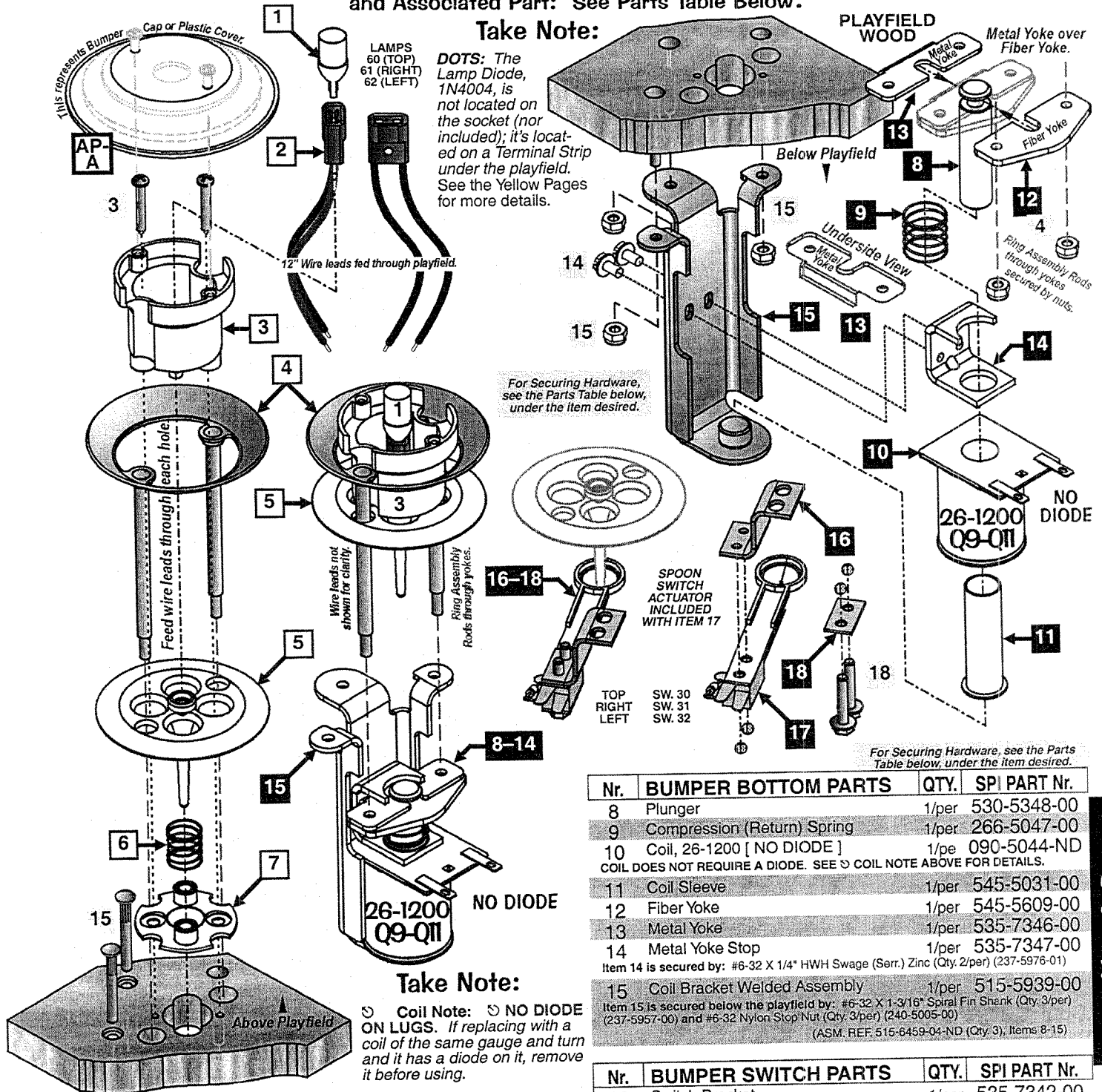
Assemblies & Ramps

Left, Right & Bottom Bumper & Switch Individual Parts Only (Items 1-18)

and Associated Part: See Parts Table Below.

Take Note:

DOTS: The Lamp Diode, 1N4004, is not located on the socket (nor included); it's located on a Terminal Strip under the playfield. See the Yellow Pages for more details.



Nr.	BUMPER TOP PARTS	QTY.	SPI PART Nr.
1	LED Module (WHT) (6.3v) Wedge Base	1/per	112-5024-08
2	Wedge Base Socket	1/per	077-5206-00
3	Bumper Body	1/per	545-5197-00
Item 3 is secured above the P/F by: #5 X 7/8" PRH AB (Zinc) (Qty. 2/per) (237-5826-00)			
4	Ring Assembly	1/per	515-5085-00
Item 4 is secured by: #6-32 Nylon Stop Nut (Qty. 2/per) (240-5005-00)			
5	Bumper Skirt (Switch Actuator)	1/per	545-5607-00
6	Bumper Skirt Compression Spring	1/per	266-5048-00
7	Bumper Base	1/per	545-5195-00
(ASM. REF. 515-6459-01L (Qty. 3), Items 1-7)			

The Top & Bottom Assemblies are secured together by hardware noted in Item 4.

Nr.	BUMPER BOTTOM PARTS	QTY.	SPI PART Nr.
8	Plunger	1/per	530-5348-00
9	Compression (Return) Spring	1/per	266-5047-00
10	Coil, 26-1200 [NO DIODE]	1/pe	090-5044-ND
COIL DOES NOT REQUIRE A DIODE. SEE COIL NOTE ABOVE FOR DETAILS.			
11	Coil Sleeve	1/per	545-5031-00
12	Fiber Yoke	1/per	545-5609-00
13	Metal Yoke	1/per	535-7346-00
14	Metal Yoke Stop	1/per	535-7347-00
Item 14 is secured by: #6-32 X 1/4" HWH Swage (Serr.) Zinc (Qty. 2/per) (237-5976-01)			
15	Coil Bracket Welded Assembly	1/per	515-5939-00
Item 15 is secured below the playfield by: #6-32 X 1-3/16" Spiral Fin Shank (Qty. 3/per) (237-5976-05) and #6-32 Nylon Stop Nut (Qty. 3/per) (240-5005-00)			
(ASM. REF. 515-6459-04-ND (Qty. 3), Items 8-15)			

Nr.	BUMPER SWITCH PARTS	QTY.	SPI PART Nr.
16	Switch Bracket	1/per	535-7342-00
Item 16 is secured by: #8 X 1/2" HWH AB (Zinc) (Qty. 2/per) (234-5101-00)			
17	Bumper Stack (Blade) Switch Assy.	1/per	180-5015-04
Included with Item 17: Spoon Switch Actuator (545-5610-02). Switch has a Diode (1N4004) (112-5003-00). Can be replaced with (1N4001) (112-5001-00).			
18	Switch Body Protect Plate	1/per	535-7344-00
Items 17 & 18 are secured by: #6-32 X 3/4" HWH Swage (Serr.) Zc. (Qty. 2) (237-5976-05)			
Can substitute Item 17 with 180-5015-05 (ASM. REF. 515-6459-09/R (Qty. 3), Items 16-18)			
ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLIES.			

Nr.	ASSOCIATED PART(S)	QTY.	SPI PART Nr.
AP-A	Kit: Plastics (includes -10, -11 & -12)	1	803-5000-A2
Note: Individual Plastics (830-6071-XX) are not available individually, ordering of kit is required.			
Item AP-A is secured Item 3 by: #5 X 7/8" PRH AB (Zinc) (Qty. 2/per) (237-5826-00)			

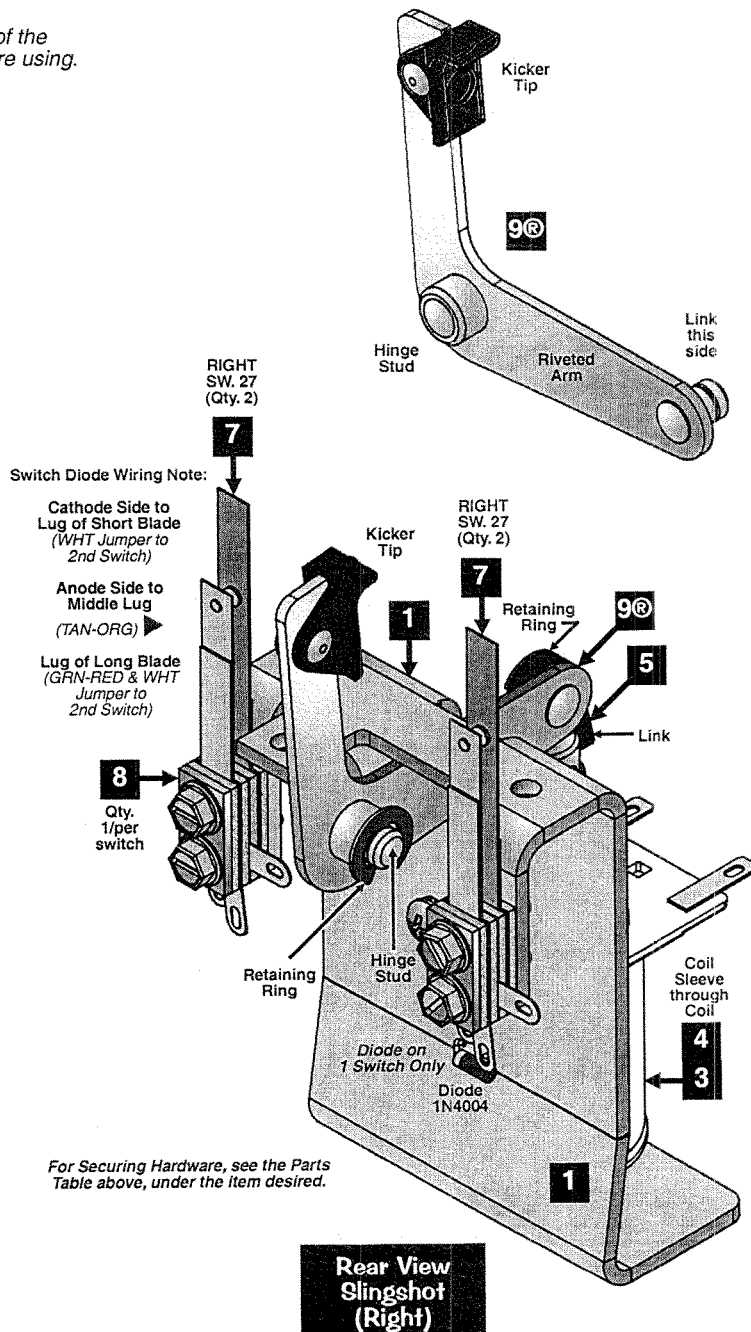
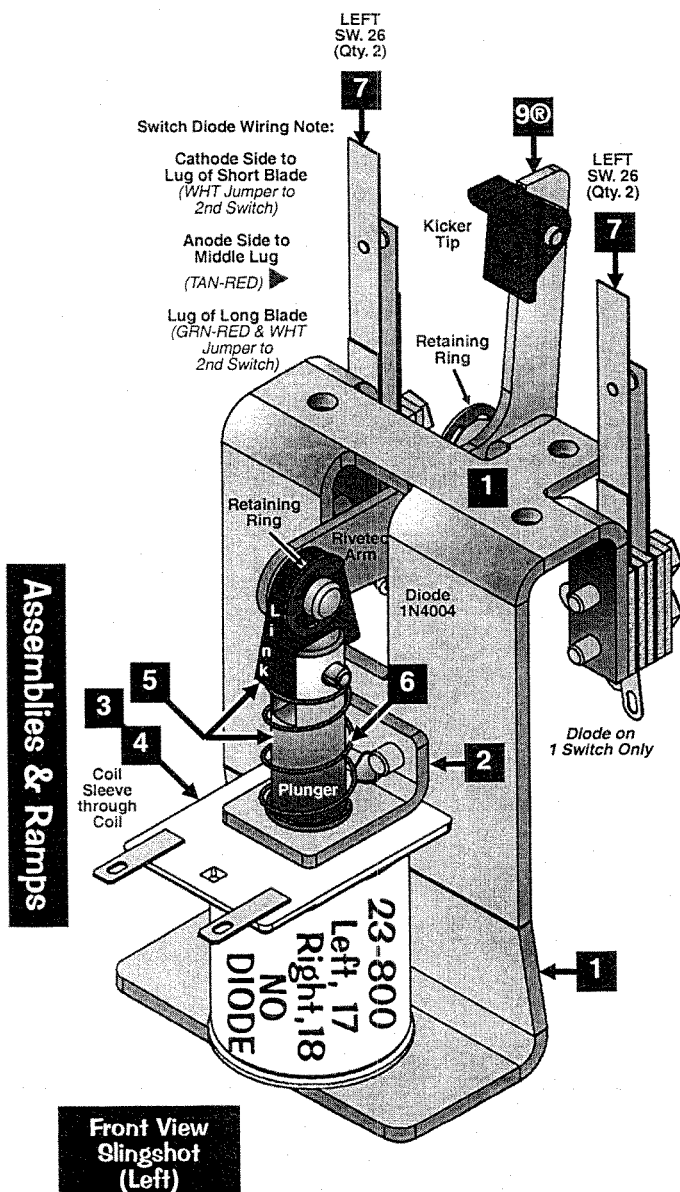
Slingshot (Left & Right) Assemblies, 500-5849-00-ND (Qty. 2) (Items 1-9)

Nr.	SLINGSHOT PARTS	QTY.	SPI PART Nr.	Nr.	SLINGSHOT PARTS	QTY.	SPI PART Nr.
1	Slingshot Bracket Assembly	1/per	515-5339-01	6	Compression (Return) Spring	1/per	266-5020-00
Item 1 is secured below the playfield by: #8 X 1/2" SHWH AB (Zc.) (Qty. 3) (234-5101-00)				7	Slingshot Stack (Blade) Switch	2/per	180-5054-00
2	Coil Retaining Bracket	1/per	535-5203-03	Only 1 of the 2 Switches has a Diode (1N4004) (112-5003-00). See Note Below on Drawing. Can be replaced with (1N4001) (112-5001-00).			
3	Coil, 23-800 [NO DIODE]	1/per	090-5001-ND	8	Switch Body Protect Plate	2/per	535-5045-00
COIL DOES NOT REQUIRE A DIODE. SEE COIL NOTE BELOW FOR DETAILS.				Items 7 & 8 are secured to Item 1 by: #6-32 X 5/8" HWH Swage (Qty. 4) (237-5976-04)			
4	Coil Sleeve	1/per	545-5031-00	9®	Riveted Arm & Tip Assembly	1/per	515-5340-01
5	Plunger & Link Assembly	1/per	515-5338-00	For Individual Parts use (requires drilling out rivet & re-securing): Arm (515-5341-01), Kicker Tip (545-5216-01) and Rivet, 1/8" x 1/4" Lg. (249-5003-00). The Riv. Arm is secured to Item 1 by: Retaining Ring, 1/4" x Shaft (Qty. 1) (270-5002-00).			
For Individual Items use: Plunger 2" Lg. (530-5025-01), Plunger Link (545-5293-00) and Roll Pin 1/8" x 5/8" Lg. (251-5008-00). The Plunger Link is secured to the Riveted Arm by: Retaining Ring, 1/4" x Shaft (Qty. 1) (270-5002-00).				Ordering Note: If 515-5340-01 is unavailable, order the individual part(s) actually required.			
Ordering Note: If 515-5338-00 is unavailable, order the individual part(s) actually required.				Ordering Note: If 500-5849-00-ND is unavailable, order the individual part(s) actually required. This assembly is identical to 500-5849-02-ND with the exception of Item 3, which uses a Coil, 27-1500 [NO DIODE] (090-5004-ND) instead.			

Take Note:

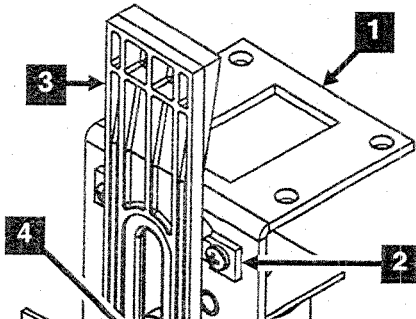
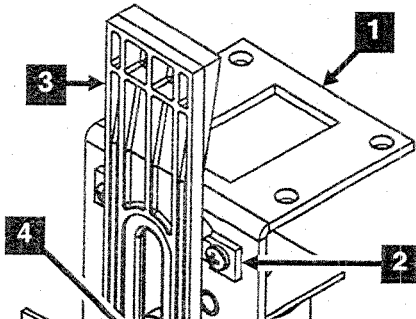
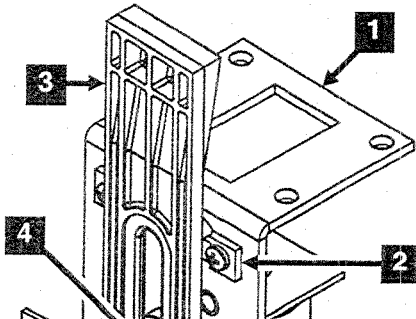
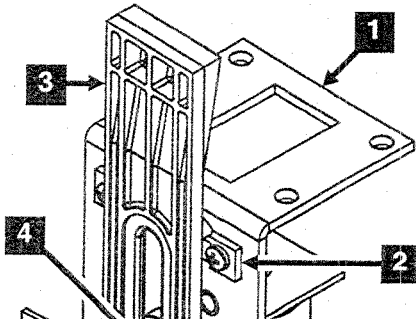
☉ **Coil Note:** ☉ NO DIODE ON LUGS. If replacing with a coil of the same gauge and turn and it has a diode on it, remove it before using.

® "R" indicates Item noted is secured with rivet(s) as listed.



1-Bank Drop Target Assembly, 500-7029-01 (Items 1-14) Continued and Associated Part : See Parts Table Below [Different Views on the previous page.]

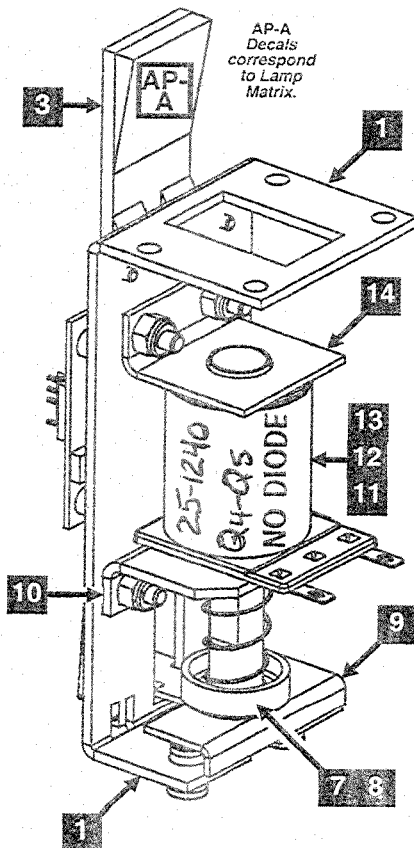
ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.

Nr.	1-BANK DROP TRGT. PARTS	QTY.	SPI PART Nr.	Nr.	ASSOCIATED PART(S)	QTY.	SPI PART Nr.
1	Frame & Pem Weldment, 1-Bank D/T	1	515-7604-01	AP-A	Kit: Decals (incl. 26 Drop Target)	1	802-5000-93
Item 1 is secured under the playfield by: #8 X 1/2" SHWH AB (Zc.) (Qty. 4) (234-5101-00)							
2	Target Rest Ledge (Blk.), 1-Bank D/T	1	545-6163-01	Note: Individual Decals (820-6394-XX) are not available individually, ordering of kit is required.			
Item 2 is secured to Item 1 by: #4-40 X 1/4" PPH MS (Zinc) (Qty. 2) (237-6169-00)							
3	Drop Target (Black Plastic) Rollover	1	545-6162-00	Take Note: ⊗ Coil Note: ⊗ NO DIODE ON LUGS. If replacing with a coil of the same gauge and turn and it has a diode on it, remove it before using.			
4	Compression (Short) Spring	1	266-5089-00				
Items 3 & 4 are secured to Item 1 @ top by: Washer, 1/2" X 17/64" X .03" (Qty. 2) (242-5091-00) and Retaining Ring, 1/4" ø (Qty. 1) (270-5002-00)							
FRAME PEM → WASHER → SPRING → WASHER → RETAINING RING → OPTO PCB → SCREW							
Item 3 is secured to Item 1 @ bottom by: Washer, 1/2" X 17/64" X .03" (Qty. 1) (242-5091-00) and Retaining Ring, 1/4" ø (Qty. 1) (270-5002-00)							
5	Reset (Long) Spring (Red Dipped)	1	265-5003-02	TARGET/PCB Side Asm'd View For Securing Hardware, see the Parts Table ABOVE, under the item desired.			
6	PCB, Slotted OPTO X1	1	520-5252-01				
Item 6 is secured to Item 1 by: #6-32 X 3/8" PPH MS (Zinc) (Qty. 2) (237-5501-00)							
7	Compression (Return) Spring	1	266-5020-00				
8	Steel Plunger with End Cap	1	530-5757-00				
9	Bracket, Target Lift (1-Bank)	1	535-9760-01A				
Item 9 is secured to Item 8 Plunger by: #10-32 X 3/8" SHWH Swage (Zinc) Wax (Qty. 1) (237-5985-00) TARGET HEIGHT ADJUSTMENT: 							
Item 9 is adjusted through Item 1 by: #8-32 X 1/2" PPH MS (Zinc) (Qty. 2) (237-5602-00)							
10	Coil Mounting Bracket (1-Bank Style)	1	535-9777-01				
Item 10 is secured to Item 1 by: #8-32 Nylon Stop Nut (Qty. 2) (240-5102-00)							
11	Spring Washer (17/32" ID X 3/4" X 1")	1	269-5002-00				
12	Coil, 25-1240 [NO DIODE]	1	090-5034-NO				
COIL DOES NOT REQUIRE A DIODE. SEE ⊗ COIL NOTE ABOVE FOR DETAILS.							
13	Coil Sleeve (Formost #10-7077)	1	545-5076-01				
14	Bracket, Plunger Stop	1	535-9959-00				
Item 14 is secured to Item 1 by: #6-32 Nylon Stop Nut (Qty. 2) (240-5102-00)							

Ordering Note: If 500-7029-01 is unavailable, order the individual part(s) actually required (for cable wiring, use Part Number 036-5523-15-93).

Coil Side Assembled View

For Securing Hardware, see the Parts Table ABOVE, under the item desired.

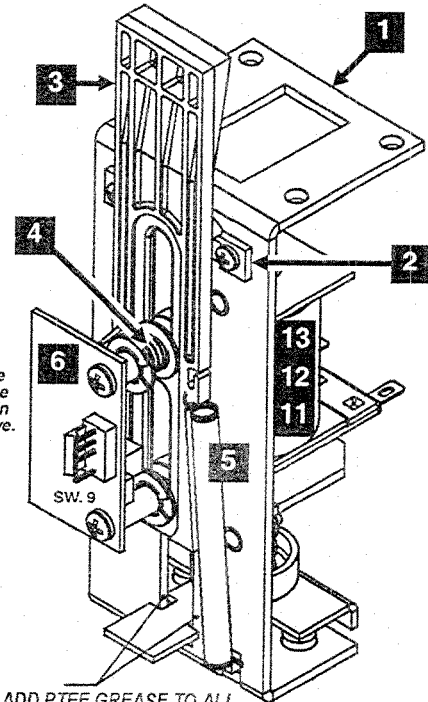


Take Note:

Coil Note: NO DIODE ON LUGS. If replacing with a coil of the same gauge and turn and it has a diode on it, remove it before using.

TARGET/PCB Side Asm'd View

For Securing Hardware, see the Parts Table ABOVE, under the item desired.



ADD PTFE GREASE TO ALL CONTACT AREAS AROUND SLOT
P/N 000-0646-00 MAGNALUBE-G OR EQUIVALENT

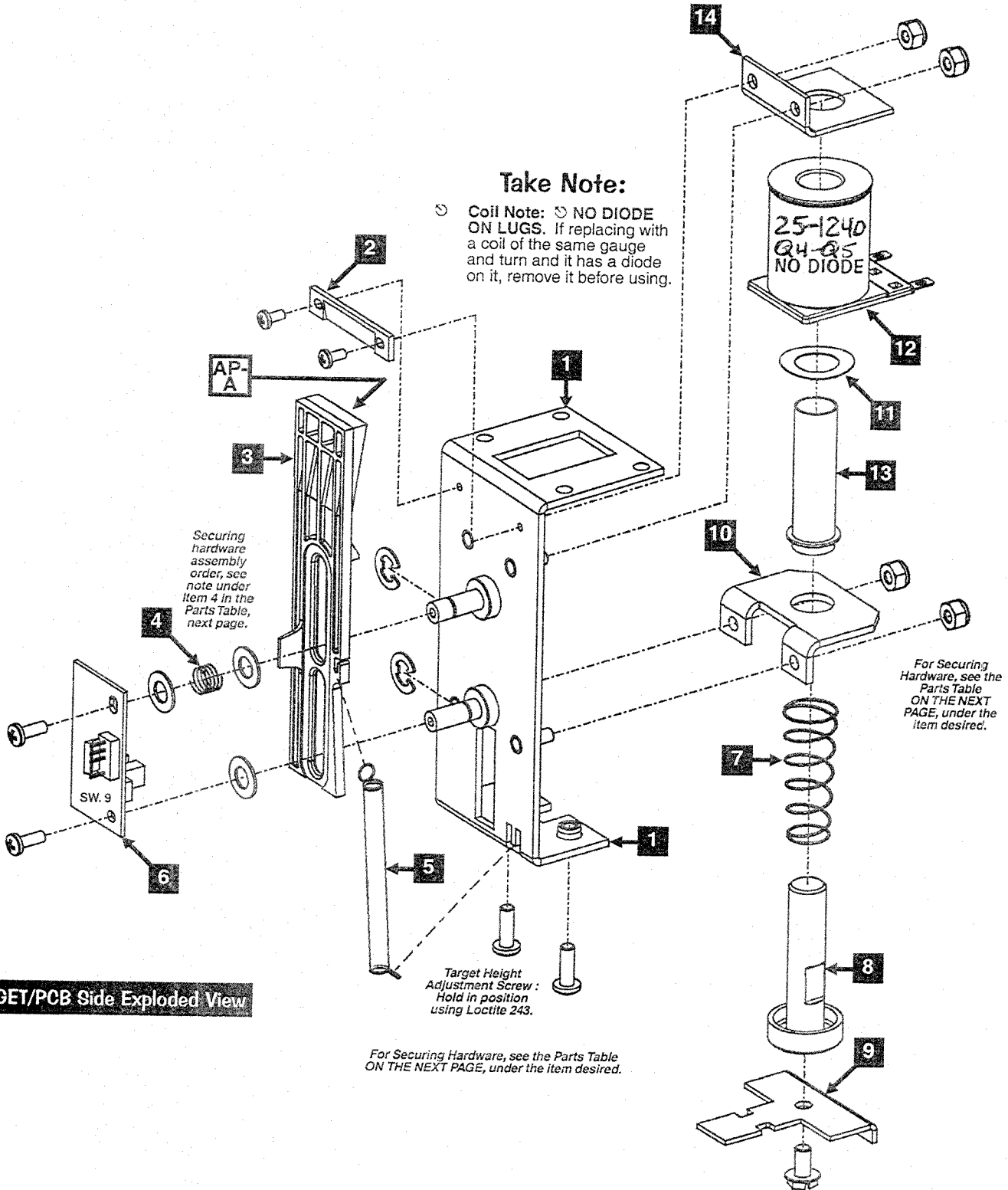
1-Bank Drop Target Assembly, 500-7029-01 (Items 1-14)

[Different Views & Parts Table on the next page.]

Coil Side Exploded View

Take Note:

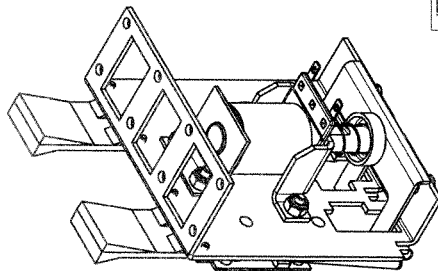
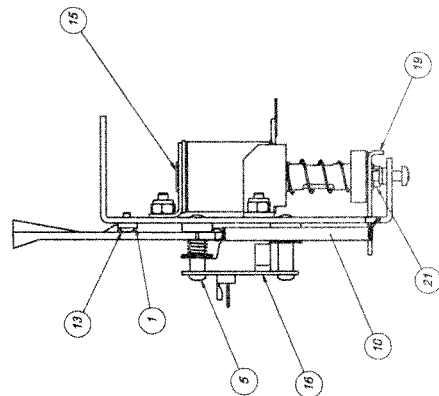
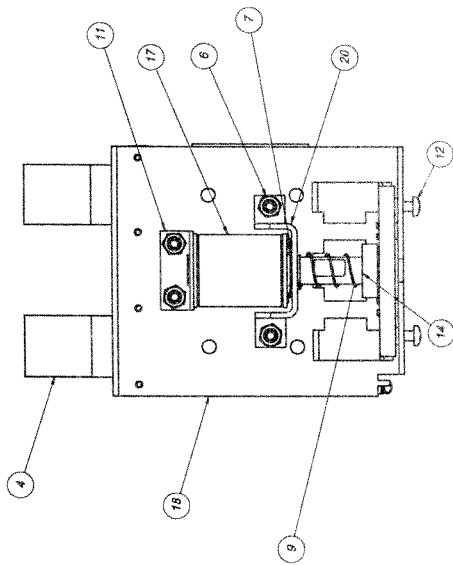
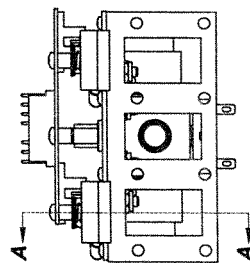
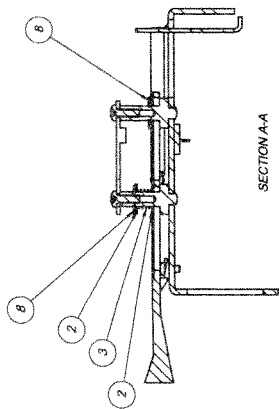
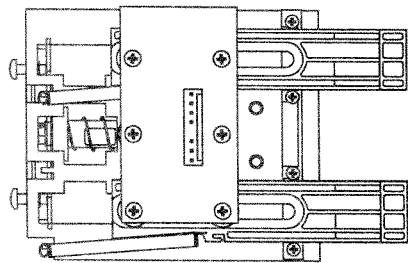
- Coil Note: NO DIODE ON LUGS. If replacing with a coil of the same gauge and turn and it has a diode on it, remove it before using.



TARGET/PCB Side Exploded View

Sec. 4: Drawings ...

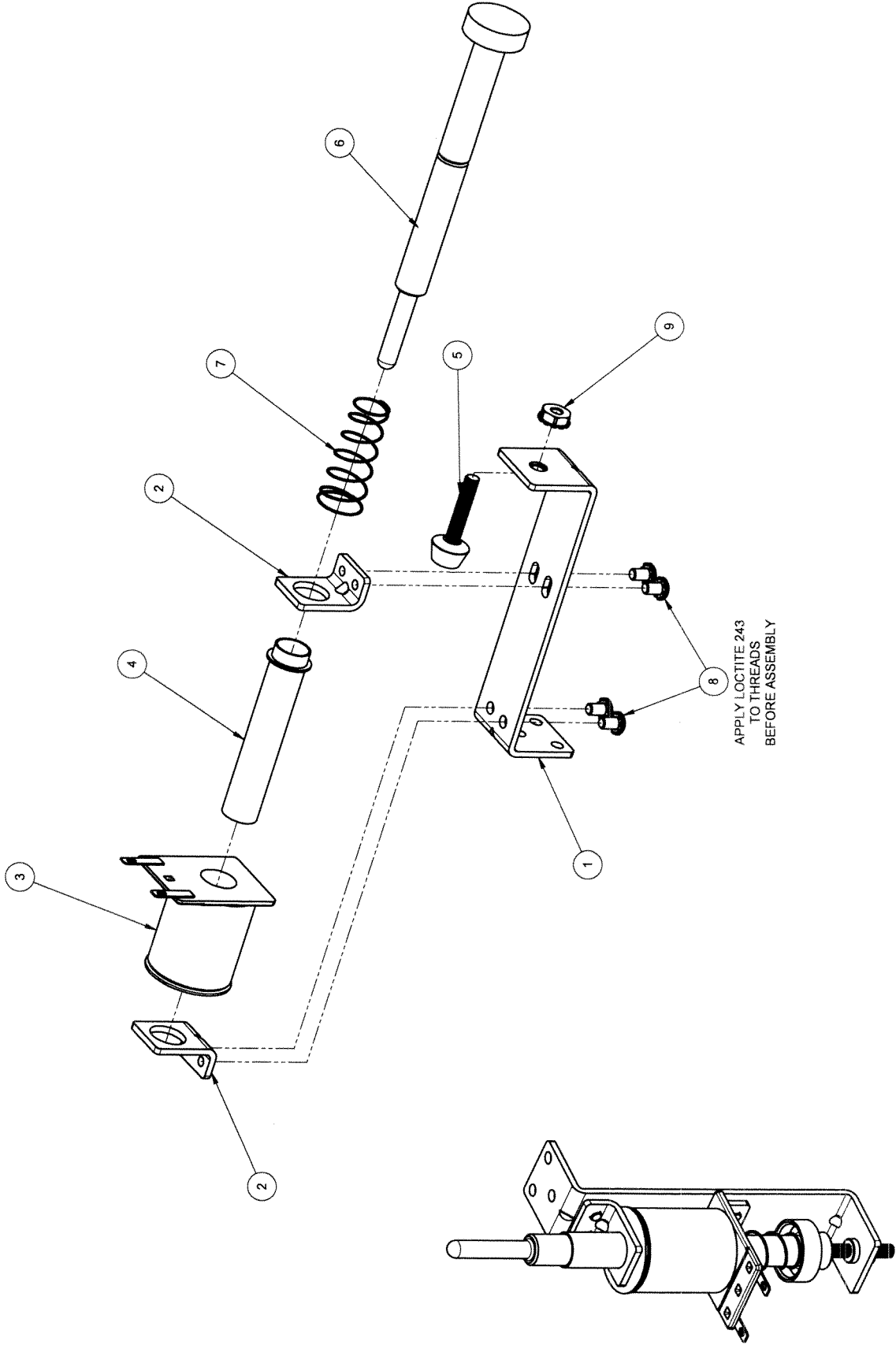
b10



ITEM #	QTY	PART #	DESCRIPTION
1	1	545-5163-03	LEDGE, 3-BANK DROP TARGET
2	6	242-5091-00	WASHER, 1/2 X 1/8 X .03 - DT
3	2	266-5089-00	SPRING COMPRESSION - DT
4	2	545-5305-00	TARGET - ROLL-OVER - BLACK
5	6	237-5501-00	SCREW, 5-32 X 3/8 PPH MS ZINC
6	4	240-5102-00	8-32 NYI ON LOCK NUT
7	1	269-5002-00	SPRING WASHER
8	4	270-5002-00	RETAINING RING - 1/4"
9	1	268-5020-00	COMPRESSION SPRING CONICAL
10	2	265-5003-02	TARGET RESET SPRING
11	2	535-5959-00	STOP BRKT
12	4	237-5002-00	SCREW, 5-32 X 1/2 PPH MS, ZINC
13	4	237-5169-00	SCREW, 4-40 X 1/4 PPH MS
14	1	530-5757-00	PLUNGER - DT ASSY
15	1	545-5076-01	COIL SLEEVE
16	1	520-5252-03-A7	3 BANK 2 OPTO DROP TARGET PCB
17	1	095-5034-ND	COIL 25-1240 - NO DIODE
18	1	515-7604-03	DROP TARGET FRAME ASSY - 3-BANK
19	1	535-5958-03	LIFT BRACKET - 3 BANK
20	1	535-5955-01	COIL BRACKET
NOT SHW			DROP TARGET CABLE
NOT SHW			1/8" PVC TUBING
21	1	605-5006-00	10-32 X 3/8 SHWH SWAGE SCREW

3-BANK 2 DROP TARGET ASSEMBLY
500-7029-03-

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	535-9248-00	BRACKET	1
2	535-5203-03	COIL RETAINING BRACKET	2
3	090-5036-ND	COIL - 24-940, NO DIODE	1
4	545-5847-00	COIL SLEEVE	1
5	280-5014-00	ADJUSTABLE BUMPER/STOP	1
6	515-7659-00	PLUNGER ASSY, NYLON 1/4" TIP	1
7	266-5020-00	COMPRESSION SPRING-CONICAL	1
8	232-5300-00	SCREW, 8-32 X 1/4" PPH SEMS	4
9	240-5208-00	10-32 KEPS NUT	1



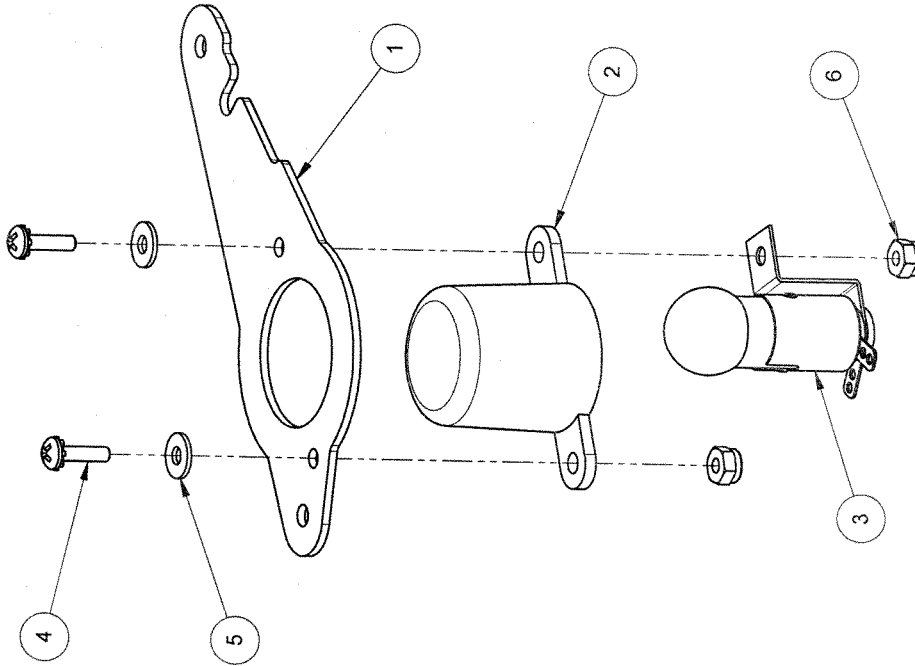
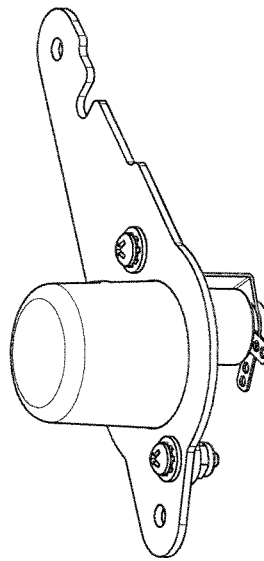
UP-POST ASSY, NO DIODE - HEAVY SPRING - 24

500-7094-02

B11

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	830-6079-04A	BUTY #4A, RIGHT SLING UPPER - 24	1
2	550-5031-03	MINI MARS W/ EARS - AMBER SB	1
3	511-5202-01	ASSY, FLASH & CABLE, SLINGS - 24	1
4	232-5202-00	SCREW, 6-32 X 1/2" PPH MS SEMS	2
5	242-5001-00	#6 WASHER	2
6	240-5005-00	6-32 NYLOK STOP NUT	2
99*	605-5002-00	SHRINK TUBING	.125 FT.

* ITEM NOT SHOWN



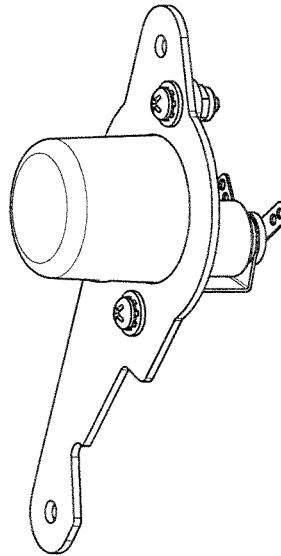
ASSEMBLY, BUTY #4A, R SLING - 24

511-5094-04A

b12

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	830-6079-02A	BUTY #2A, LEFT SLING UPPER - 24	1
2	550-5031-03	MINI MARS W/ EARS - AMBER SB	1
3	511-5202-01	ASSY, FLASH & CABLE, SLINGS - 24	1
4	232-5202-00	SCREW, 6-32 X 1/2" PPH MS SEMS	2
5	242-5001-00	#6 WASHER	2
6	240-5005-00	6-32 NYLOK STOP NUT	2
99*	605-5002-00	SHRINK TUBING	.125 FT.

* ITEM NOT SHOWN

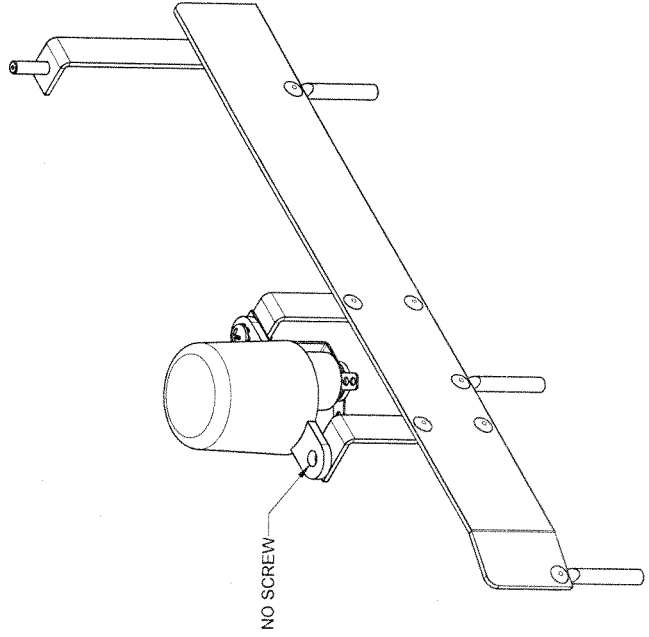
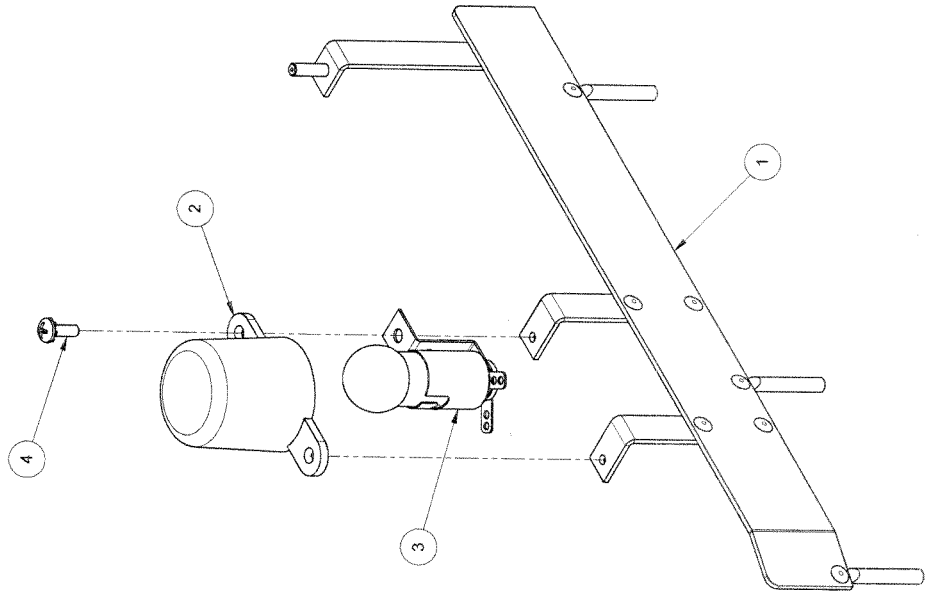


ASSEMBLY, BUTY #2A, L SLING - 24

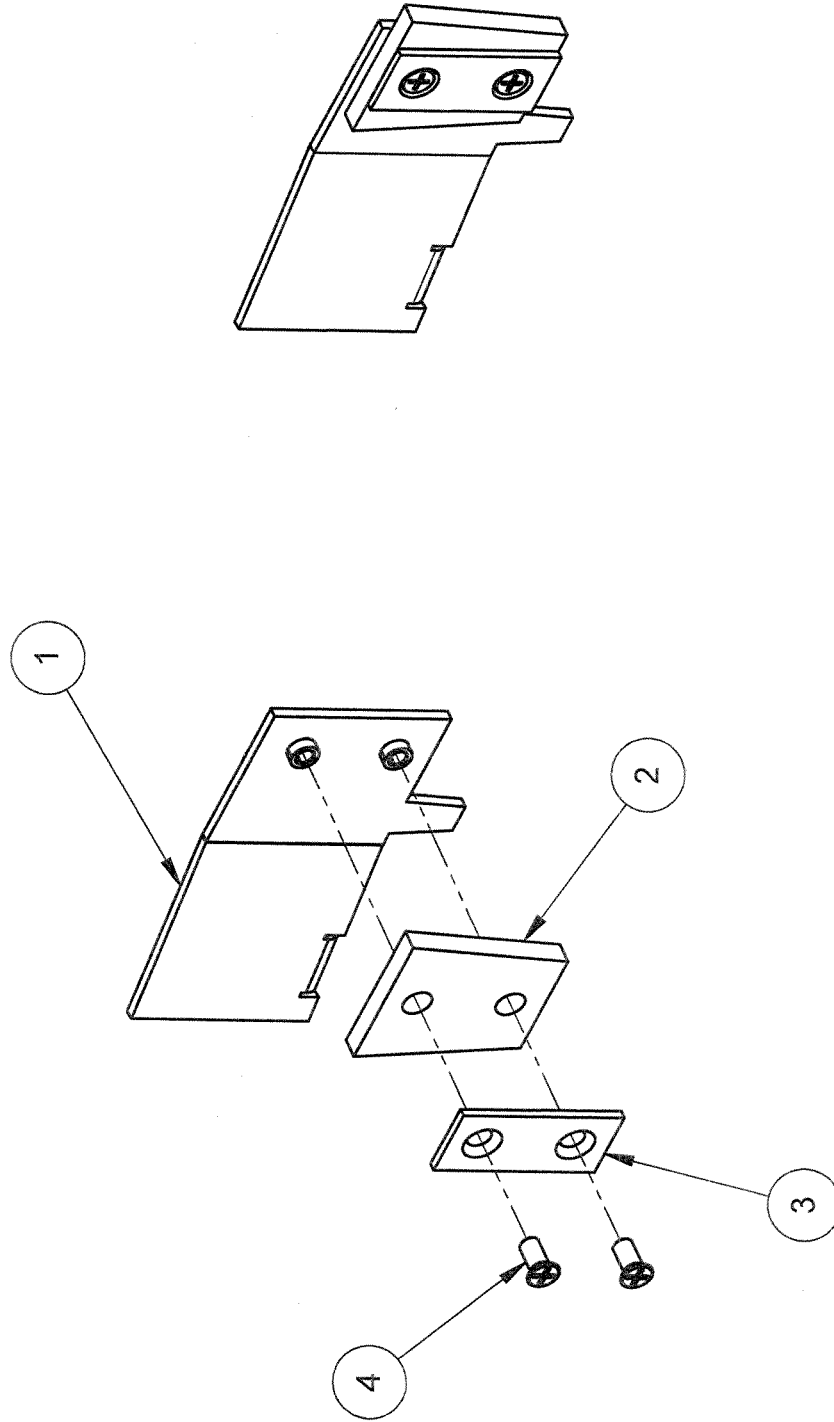
511-5094-02A

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	515-7668-00	BALL GUIDE #00 - RIGHT LANE - 24	1
2	550-5031-02	MINI MARS W/ EARS - RED SB	1
3	511-5202-02	ASSY. FLASH & CABLE MID-RIGHT - 24	1
4	232-5201-00	SCREW, 6-32 X 3/8" PPH MS SEMS	1

614



ITEM #	QTY.	PART NUMBER	DESCRIPTION
1	1	535-0091-02	BALL GUIDE #2 - DT / RAMP - 24
2	1	626-5067-00	RUBBER BUMPER - BLUE - FASTENED
3	1	535-9648-00	BUMPER HOLDER - FASTENED
4	2	237-5983-02	SCREW, 4-40 x 1/4" PFH MS - BLACK

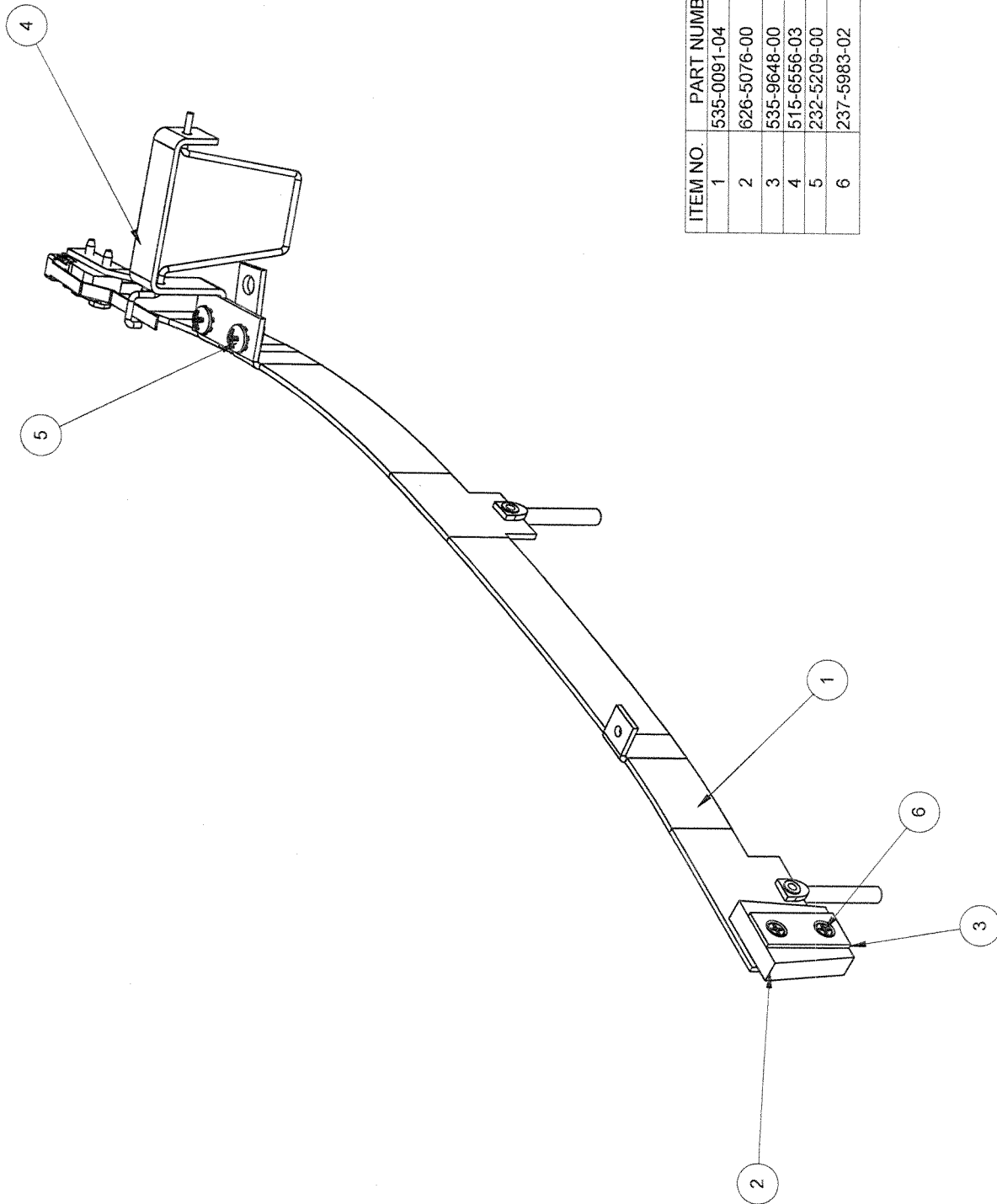


ASSEMBLY, BALL GUIDE #2 - 24

511-5085-02

DIS

b16



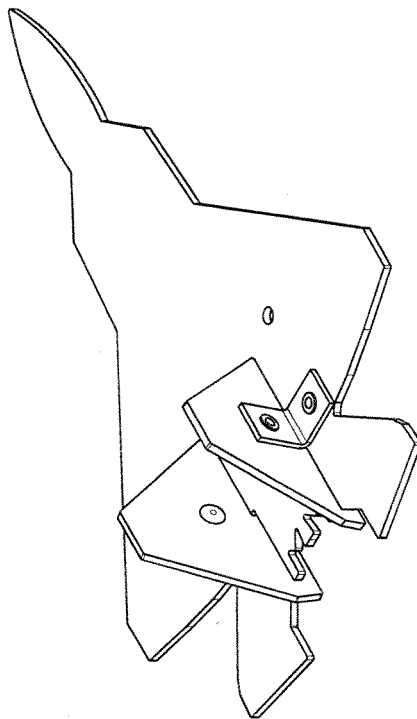
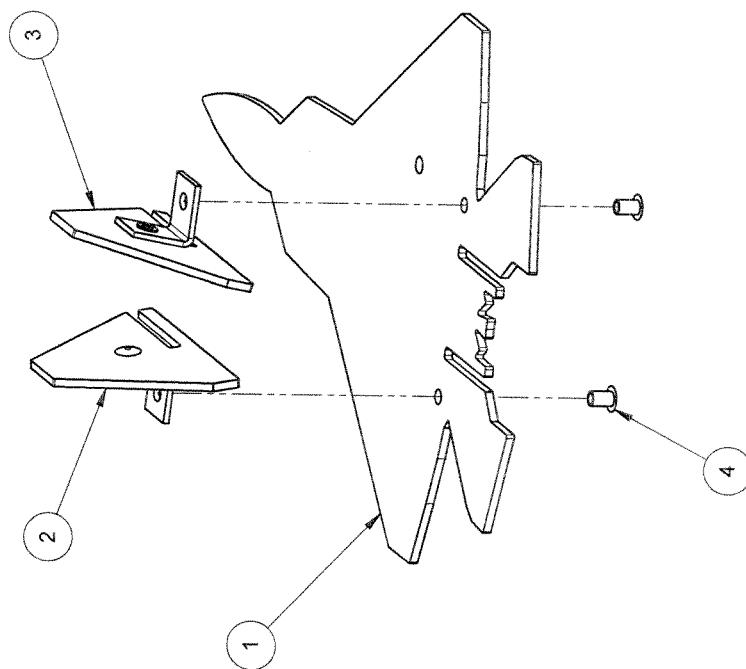
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	535-0091-04	BALL GUIDE #4, 24	1
2	626-5076-00	RUBBER BUMPER, 1/4" WEDGE - BLUE	1
3	535-9648-00	BUMPER HOLDER - FASTENED	1
4	515-6556-03	GATE ASSEMBLY	1
5	232-5209-00	SCREW, 6-32 X 3/16" PPH SEMS	2
6	237-5983-02	SCREW, 4-40 X 1/4" PFH MS - BLACK	2

BALL GUIDE ASSEMBLY #4 - 24

511-5085-04

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	830-6079-33	BUTY #33 - JET BODY - 24	1
2	510-5094-34	RIVETED ASSY, BUTY #34 - 24	1
3	510-5094-32	RIVETED ASSY, BUTY #32 - 24	1
4	249-5001-00	RIVET - 1/8 X 3/16	2
5	535-8941-07	BRACKET	2

* BUTY pieces are sold in the plastic set
(803-5000-A7)

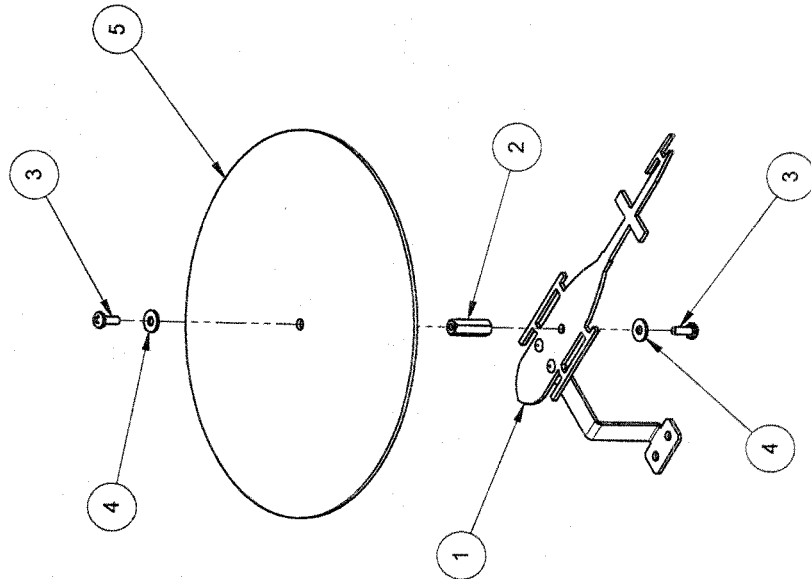


RIVETED ASSY, BUTY #33, JET - 24

510-5094-33

b18

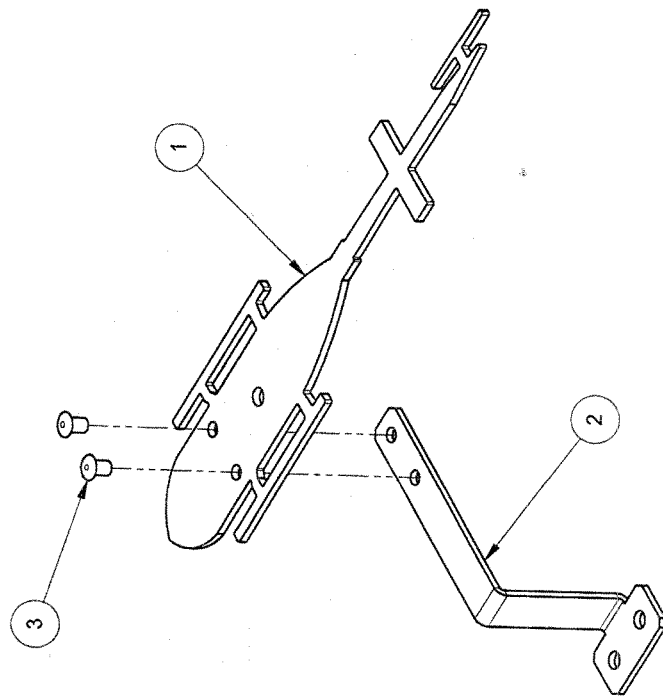
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	510-5094-89	RIVETED ASSY, BUTY #89, HELI - 24	1
2	254-5008-04	HEX SPACER - 3/4 "	1
3	232-5201-00	SCREW, 6-32 X 3/8" PPH MS SEMS	2
4	242-5001-00	#6 WASHER	2
5	830-6079-88	BUTY #88 - HELI BLADE - 24	1



ASSEMBLY, BUTY #89, HELI - 24

511-5094-89

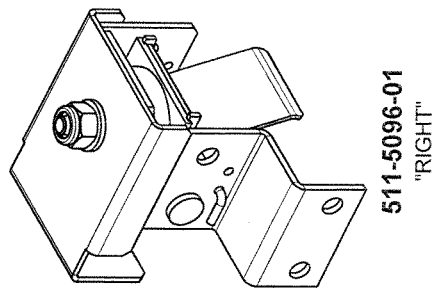
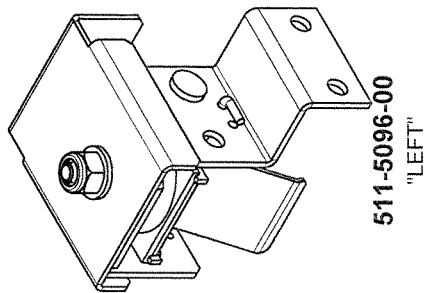
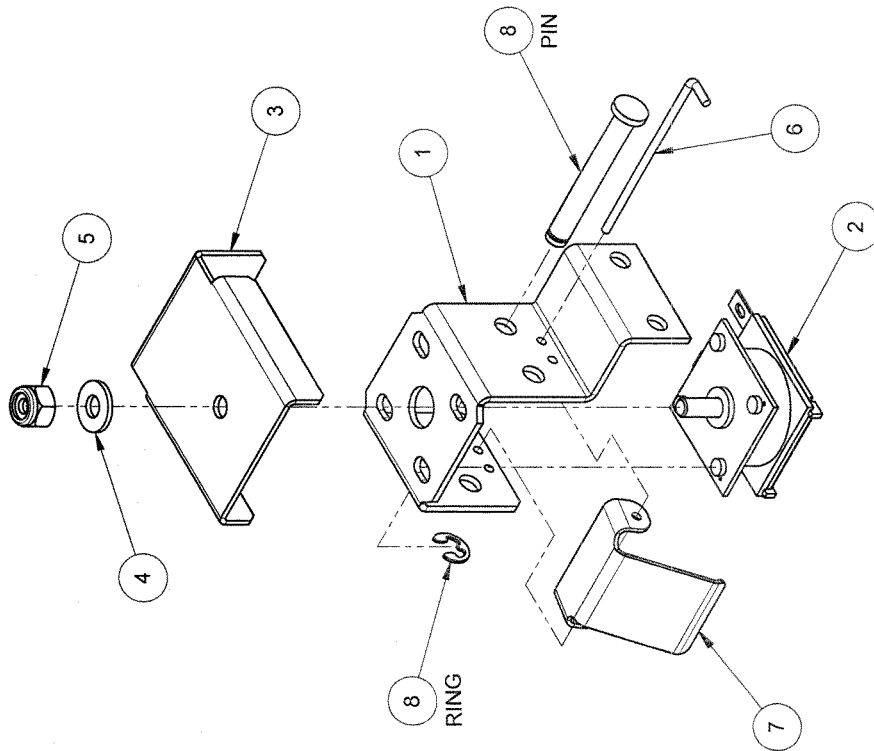
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	830-6079-89	BUTY #89 - HELICOPTER - 24	1
2	535-0297-00	BRACKET, HELICOPTER MOUNT, 24	1
3	249-5001-00	RIVET - 1/8 X 3/16	2



RIVETED ASSY, BUTY #89, HELI - 24

510-5094-89

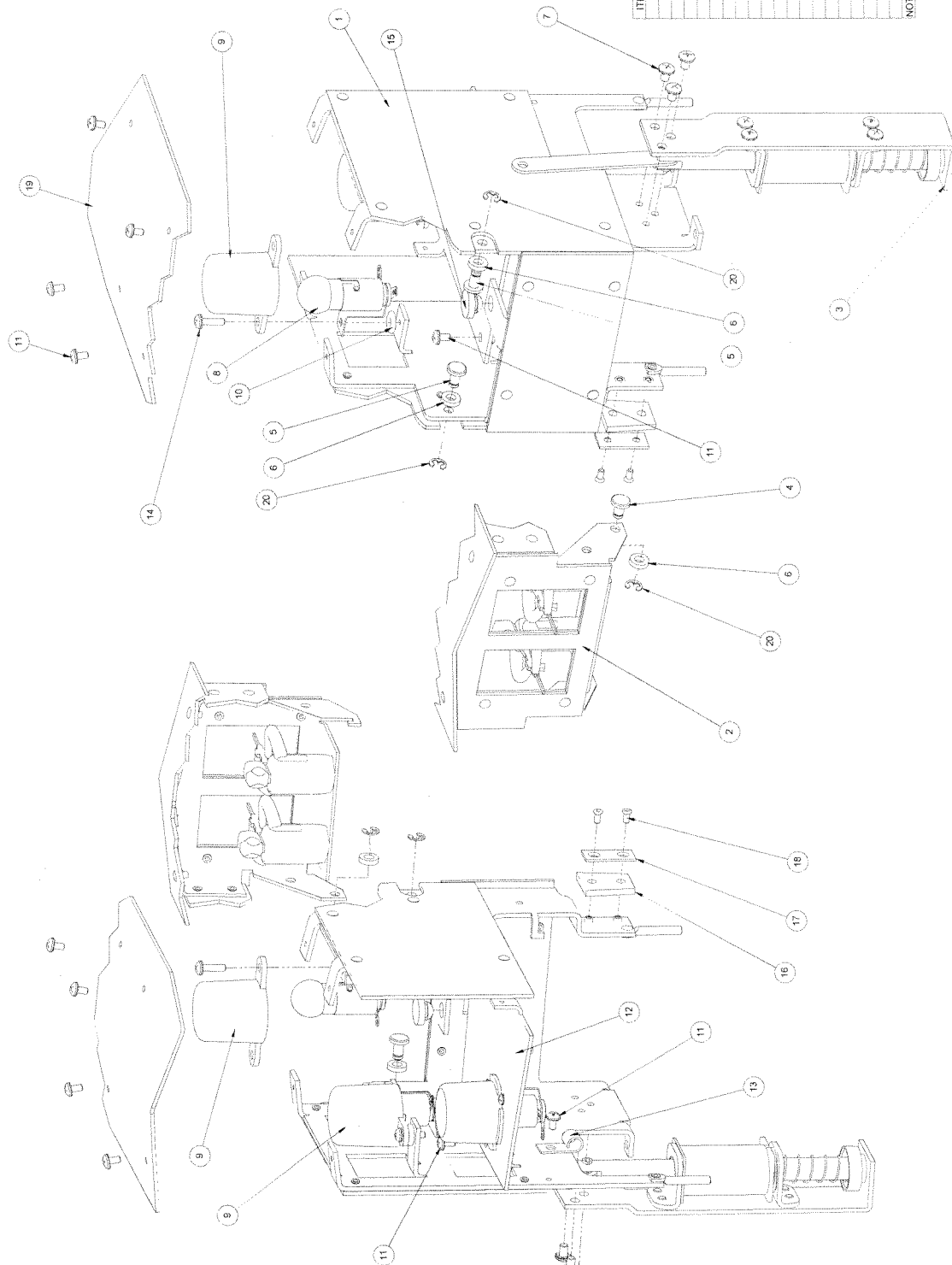
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	535-0134-00	BRACKET, ELEC GATE, BK. PANEL MNT	1
2	090-5060-01-ND	MINI-COIL W/CORE, ND - 32-1250, YELLOW	1
3	535-9577-00	COVER, ELECTRIC GATE	1
4	242-5005-00	#8 WASHER	1
5	240-5102-00	8-32 NYLON LOCK NUT	1
6	535-5372-00	REBOUND HINGE PIN	1
7	535-9682-00	GATE - ELECTRIC (MAGNET)	1
8	530-5702-01	CLEVIS PIN W/ RING, 3/16"D X 1-1/2"	1
NOT SHN.	036-5543-00	CABLE - ELECTRIC GATE	1



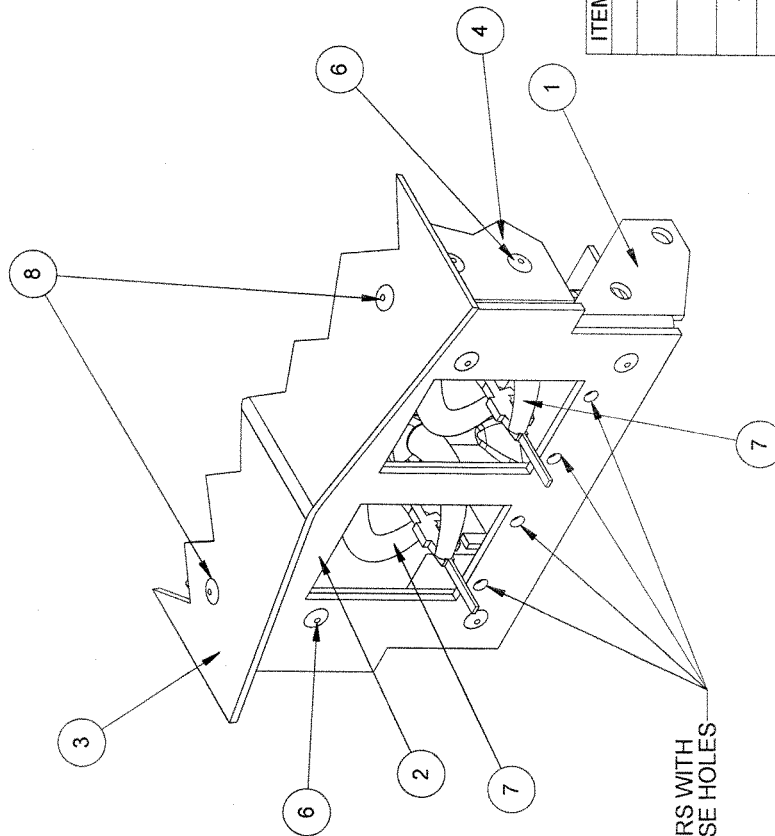
ASSY, ELECTRIC GATE, BK. PANEL MNT

511-5096-XX

b20



ITEM #	QTY	PART #	DESCRIPTION
1	1	510-5089-00	SAFE HOUSE RIVET ASSEMBLY
2	1	510-5090-00	DOOR RIVET ASSEMBLY
3	1	511-5099-00	24-SAFE HOUSE VUK ASSEMBLY
4	1	535-5720-00	PIVOT PIN
5	2	535-5720-01	PIVOT PIN
6	3	254-5044-03	SPACER - 3/8" OD X #10 ID
7	3	232-5300-00	SCREW 8-32 X 1/4" PPH SEMS
8	2	519-5101-00-HF	SOCKET #69 BULB ASST - HEAVY FILAMENT
9	2	558-5001-03	MINI WAX W EARS - AMBER SS
10	3	232-5300-00	SCREW 8-32 X 1/4" PPH SEMS
11	3	232-5300-00	SCREW 8-32 X 1/4" PPH SEMS
12	1	511-5099-00	24-SAFE HOUSE FLASHER ASSEMBLY
13	1	040-5000-03	1/4" CABLE CLAMP
14	3	232-5202-00	SCREW 6-32 X 1/2" PPH NS SEMS
15	1	545-5105-00	RUBBER BUMPER
16	1	626-5067-00	RUBBER BUMPER - BLUE - FASTENED
17	1	535-9648-00	BUMPER HOLDER - FASTENED
18	2	237-5993-02	SCREW 4-40 X 1/4" PPH MS - BLACK
19	1	830-6075-76	FORMED SAFE HOUSE ROOF - BACK
20	3	270-5001-00	RETAINING RING - 3/16" SHAFT OD
NOT SHN	1	036-5534-17-A7	CABLE - 2ND FLOOR FLASH LAMP'S



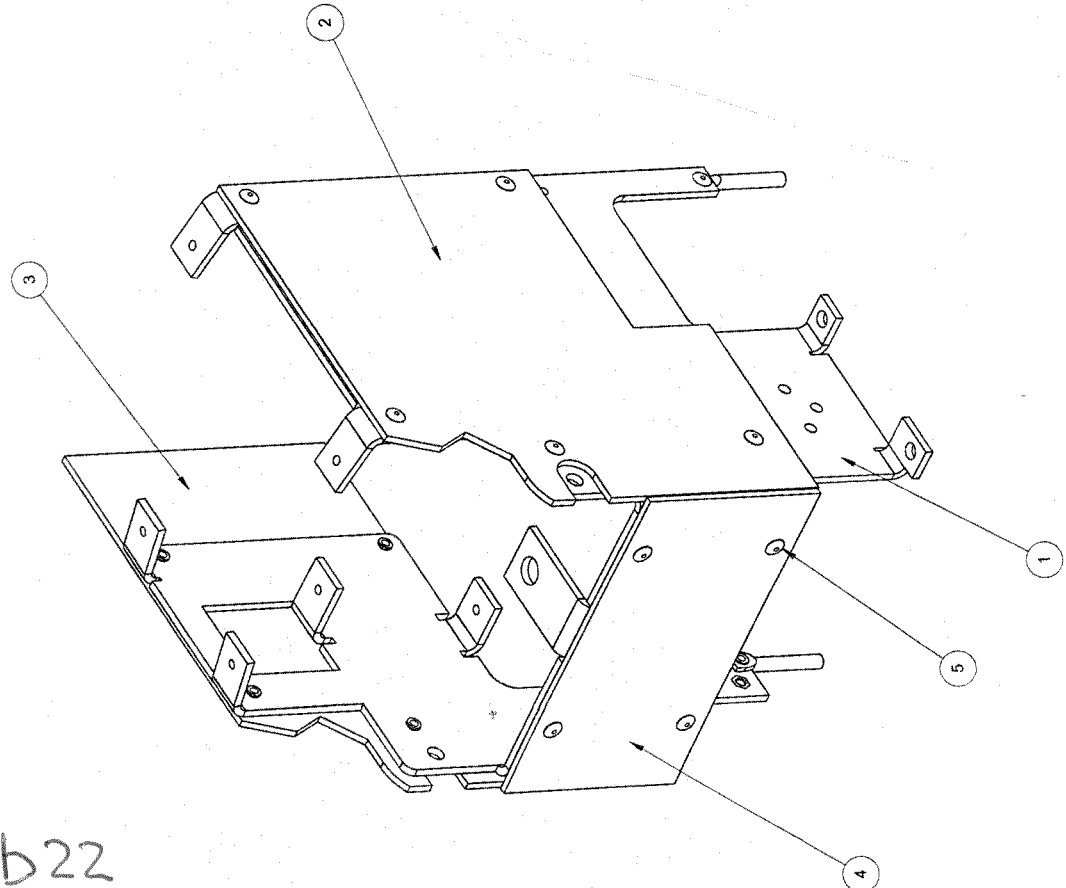
FASTEN EACH CHARACTER WITH
WIRE TIES THROUGH THESE HOLES

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	535-0115-00	24-SAFE HOUSE DOOR	1
2	830-6079-93	BUTY #93 - SAFEHOUSE DOOR, FRONT	1
3	830-6079-79	FORMED SAFE HOUSE ROOF - FRONT	1
4	830-6079-94	BUTY #94 - SAFEHOUSE DOOR, RIGHT	1
5	830-6079-95	BUTY #95 - SAFEHOUSE DOOR, LEFT	1
6	249-5001-00	RIVET - 1/8 X 3/16	8
7	545-6319-02	CHARACTER - SAFEHOUSE	2
8	249-5023-00	POP RIVET - 1/8 X 1/4	2
NOT SHN.	040-5001-01	WIRE TIE - 4"	2

DOOR-RIVET ASSEMBLY

510-5090-00

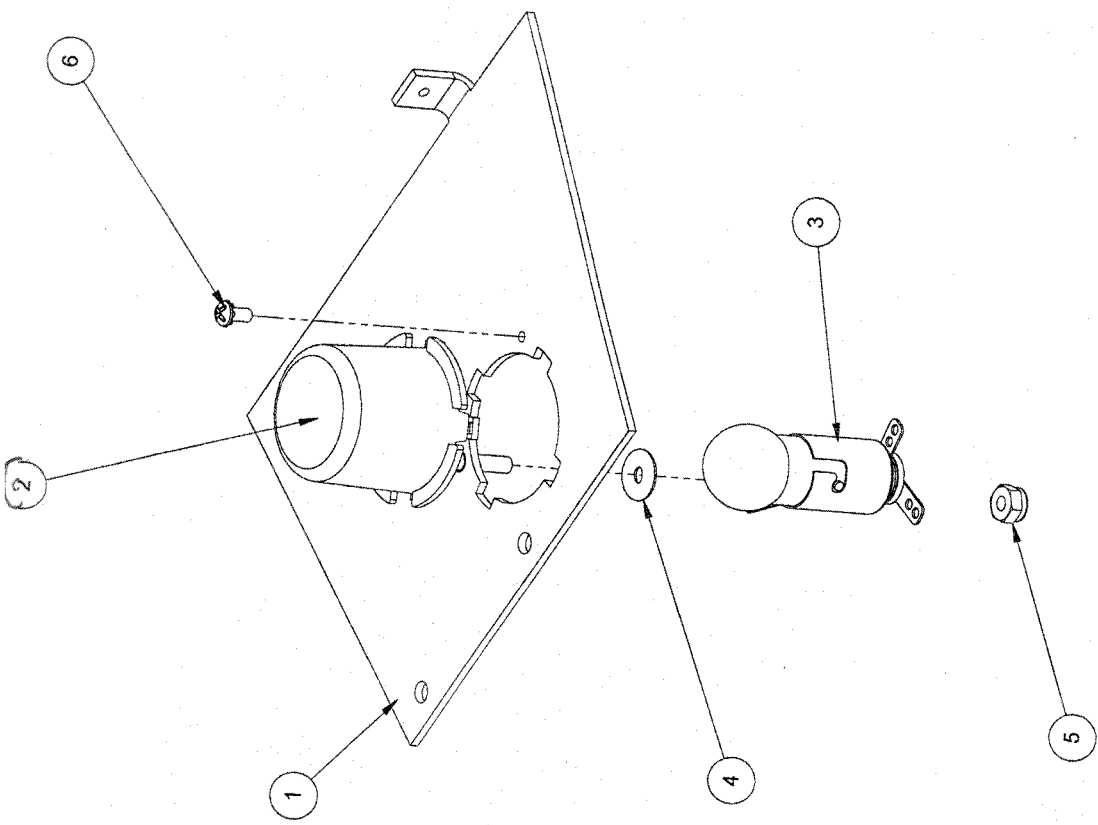
b22



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	515-7670-00	24-EXPLODING SAFE HOUSE FRAME	1
2	830-6079-90	BUTY #90 - SAFEHOUSE, RIGHT	1
3	830-6079-91	BUTY #91 - SAFEHOUSE, LEFT	1
4	830-6079-92	BUTY #92 - SAFEHOUSE FRONT	1
5	249-5003-00	RIVET - 1/8 X 1/4	13

SAFE HOUSE RIVET ASSEMBLY

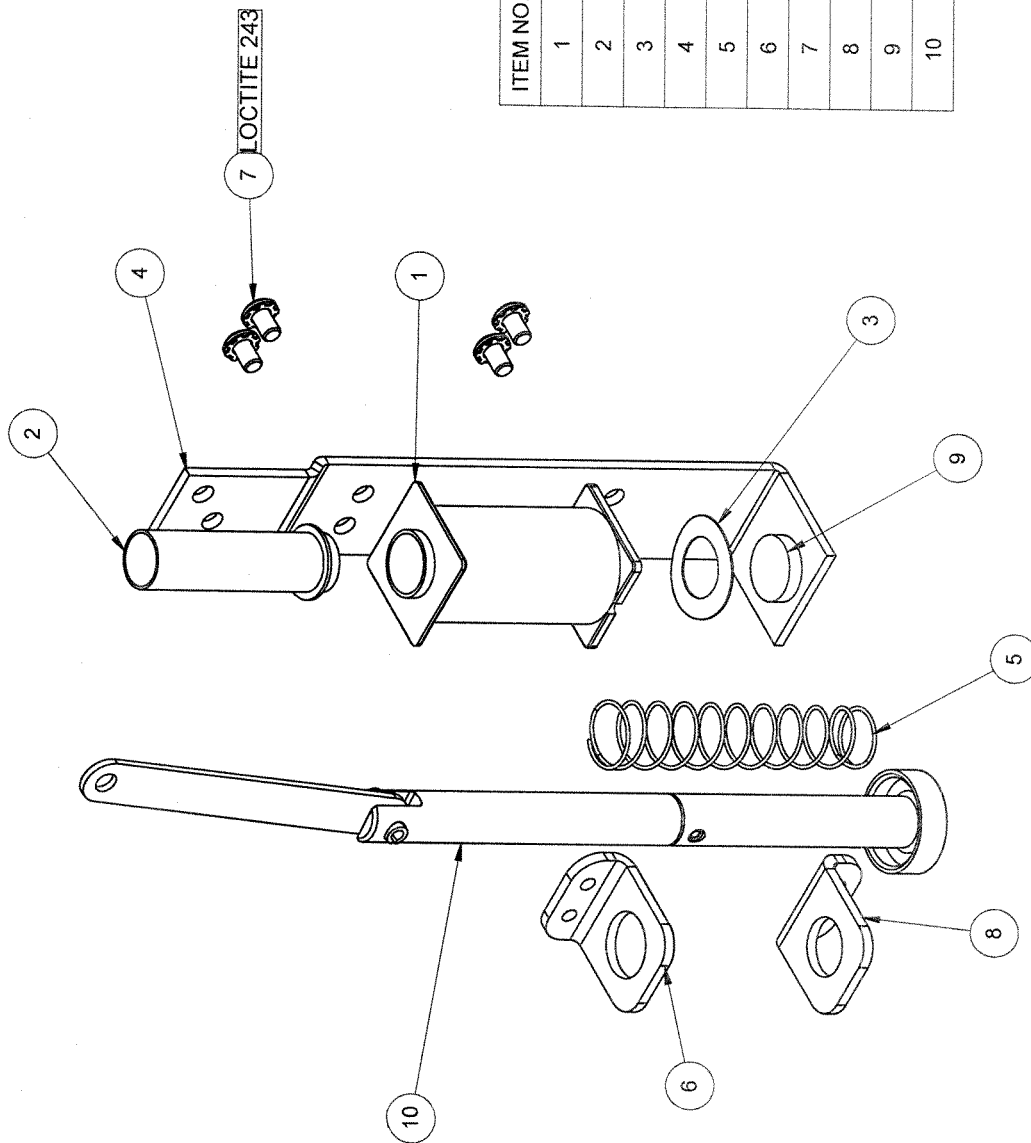
510-5089-00



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	515-7676-00	FLASHER MOUNTING PLATE	1
2	550-5030-01	LAMP LENS, TWIST ON CLEAR	1
3	519-5101-00-HF	SOCKET #89 BULB ASSY - HEAVY FILAMENT	1
4	545-5348-17	7/16 O.D. RUBBER RING - BLACK	1
5	240-5005-00	6-32 NYLOK STOP NUT	1
6	237-5909-00	SCREW, 4-40 X 1/4" PPH SEMS	1
NOT SHN.	036-5534-17-A7	CABLE - HOUSE FLASHER ASSY	1

24-SAFE HOUSE FLASHER ASSEMBLY

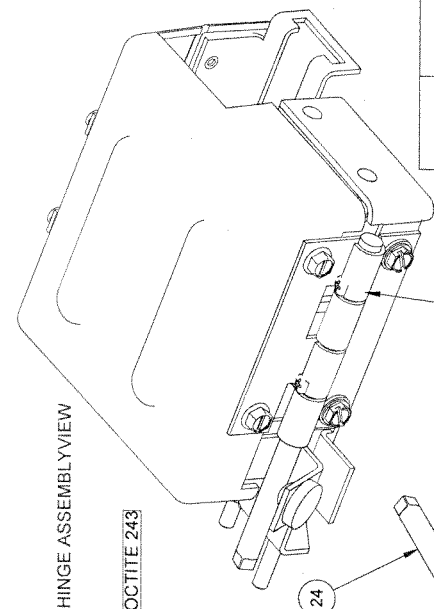
511-5098-00



ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY
1	511-5206-00	COIL ASSEMBLY	1
2	545-5076-01	COIL SLEEVE	1
3	269-5002-00	SPRING WASHER	1
4	535-0129-00	BRACKET - VUK	1
5	266-5034-01	COMPRESSION SPRING	1
6	535-0130-00	COIL RETAINING BRACKET	1
7	232-5300-00	SCREW, 8-32 X 1/4" PPH SEMS	4
8	535-0130-01	COIL RETAINING BRACKET	1
9	545-5105-00	RUBBER BUMPER	1
10	515-7719-00	PLUNGER/LINK ASSEMBLY - SAFEHOUSE	1

24-SAFE HOUSE VUK ASSEMBLY

511-5099-00

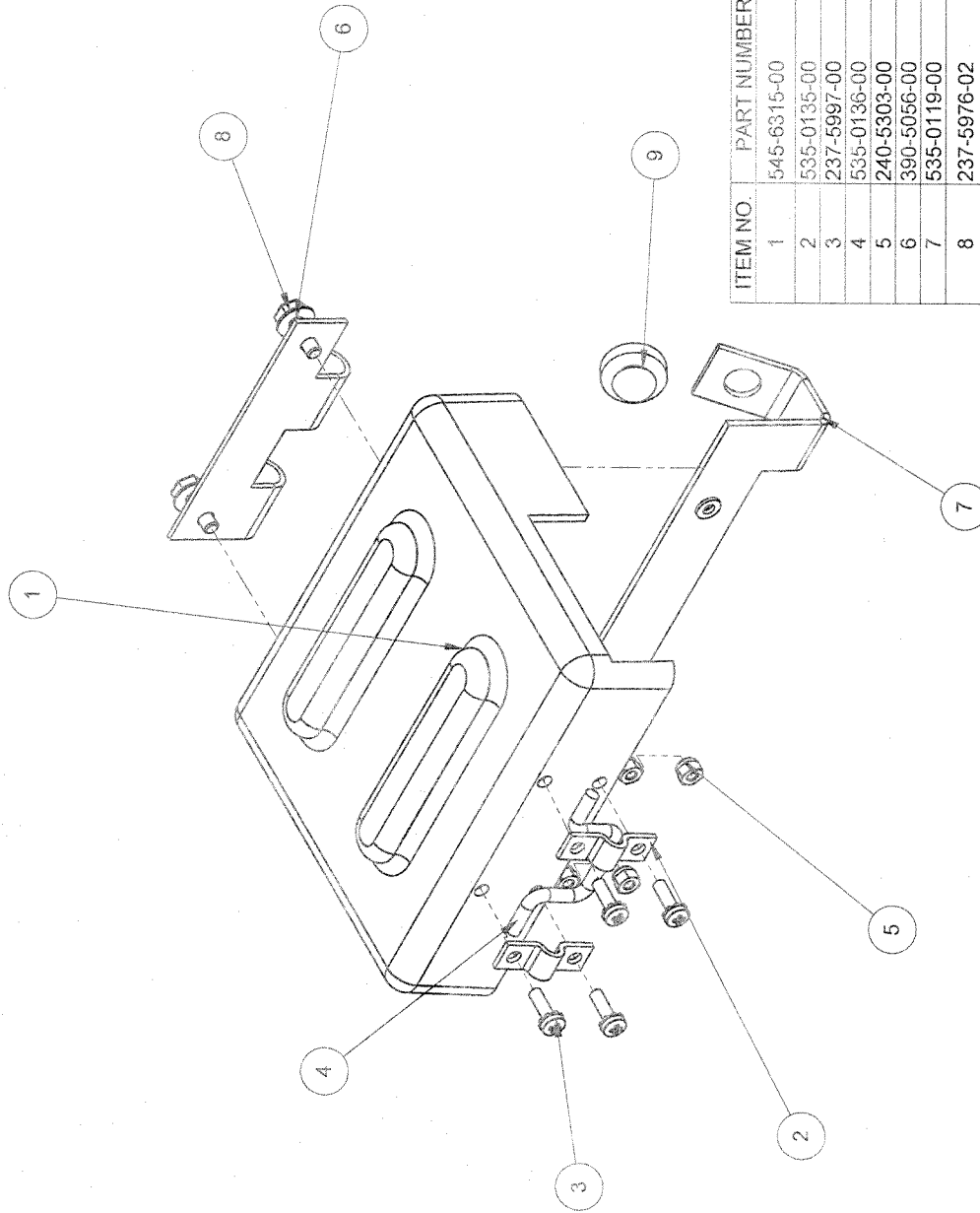


ITEM NO.	PART NUMBER	DESCRIPTION	511-5090-00/ QTY.
1	511-5091-00	SUITCASE FRAME ASSEMBLY	1
2	090-5046-01-ND	MINI-COIL 27-950 NO DIODE	1
3	515-7667-00	PLUNGER STOP BRACKET	1
4	515-7721-00	PLUNGER ASSEMBLY - SUITCASE - 24	1
5	535-0112-00	SUITCASE BALL GUIDE	1
6	270-5003-00	RETAINING RING 5/16"	1
7	266-5093-01	MINI EJECT SPRING	1
8	545-5485-00	NYLINER-THOMSON 5/16 (5L1-FF)	1
9	535-0116-00	24 SWITCH BRACKET	1
10	180-5119-02	MICRO-SWITCH - LIGHT ACTUATION	3
11	237-5976-01	SCREW 6-32 X 1/4 HWH SLT SER SWG	9
12	545-5442-00	MINI - COIL SLEEVE	1
13	535-6539-00	SWITCH BODY PROTECT PLATE	3
14	237-5937-02	SCREW 2-56 X 1/2" HWH MS	6
15	254-5008-11	HEX SPACER - 1 1/4"	2
16	830-6079-72	SUITCASE BUTY	1
17	390-5056-00	24 SUITCASE HINGE	1
18	242-5001-00	#6 WASHER	6
19	232-5202-00	SCREW 6-32 X 1/2" PPHMS SEMS	2
20	545-6268-00	FISCHE PAPER	3
21	254-5024-11	HEX SPACER MALE/FEMALE - 1 1/4"	2
22	240-5005-00	6-32 NYLON STOP NUT	2
23	511-5089-00	SUITCASE ASSEMBLY	1
24	530-6530-00	24 SUITCASE DRIVE SHAFT	1
25	237-6169-00	#4-40 X 1/4 PPH MS ZINC	2
26	112-5003-00	DIODE - 1N4004	3
27	545-6767-00	FICHE PAPER - SUITCASE	1
28	605-5004-01	SHRINK TUBING - 1/4" X 1" (1 FT)	.1FT
29	242-5104-00	NYLON WASHER - 5/16 X 1/2 X .031	1
30	242-5103-00	SPRING WASHER - .331 ID X .490 OD X .0075	1
NOT SHN.	036-5534-14-A7	SUITCASE RELEASE CABLE	1
NOT SHN.	036-5534-18-A7	SUITCASE 3-BALL CABLE	1

24 SUITCASE BOTTOM ASSEMBLY

511-5090-00

b24

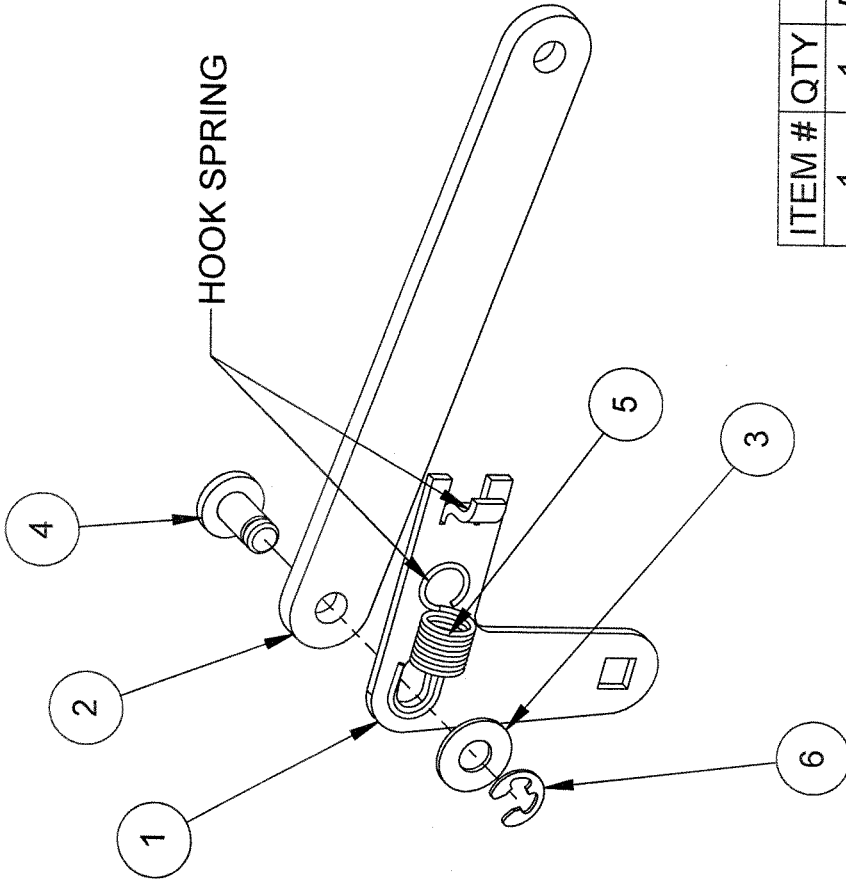


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	545-6315-00	24 PLASTIC SUITCASE COVER	1
2	535-0135-00	HANDLE BRACKET	2
3	237-5997-00	SCREW, 4-40 X 3/8" PPH SEMS	4
4	535-0136-00	HINGE WIRE	1
5	240-5303-00	4-40 NYLON LOCK NUT	4
6	390-5056-00	24 SUITCASE HINGE	1
7	535-0119-00	24 ANTI-ROTATION BRACKET	1
8	237-5976-02	SCREW, 6-32 X 3/8" HWH	2
9	545-5105-00	RUBBER BUMPER	1

SUITCASE ASSEMBLY

511-5089-00

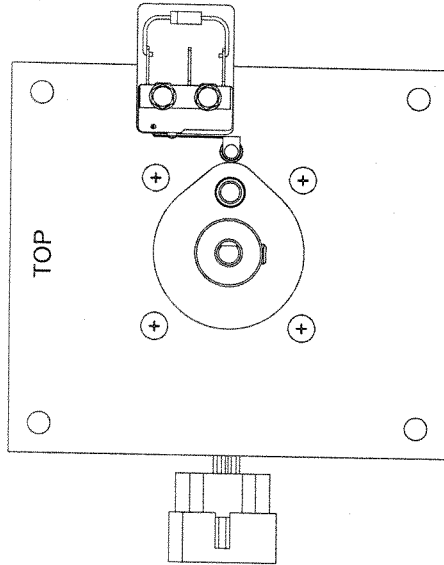
b26



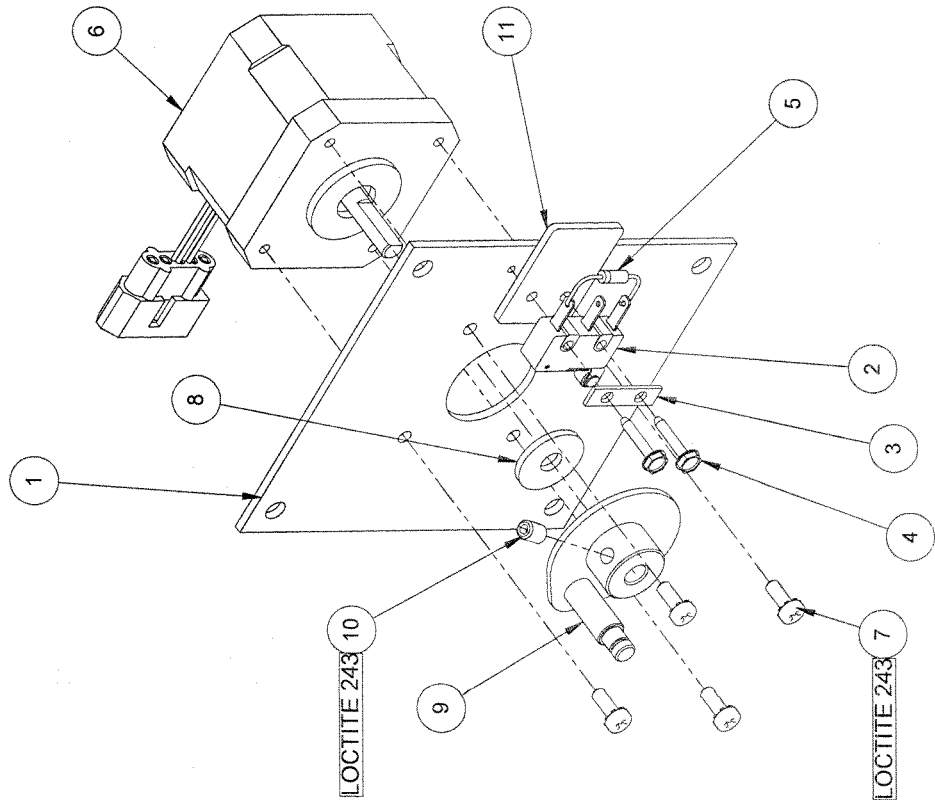
ITEM #	QTY	PART #	DESCRIPTION
1	1	535-0111-00	24 LINKAGE-DRIVEN
2	1	545-6317-04	LINKAGE(PLASTIC) DRIVING
3	1	242-5088-00	NYLON WASHER .195" X .437" X .031"
4	1	530-5720-01	PIVOT PIN
5	1	265-5066-00	SPRING, EXTENSION
6	1	270-5001-00	RETAINING E-RING, 3/16" SHAFT OD

LINKAGE ASSEMBLY

511-5207-00



FRONT VIEW
ASSEMBLY AS SHOWN



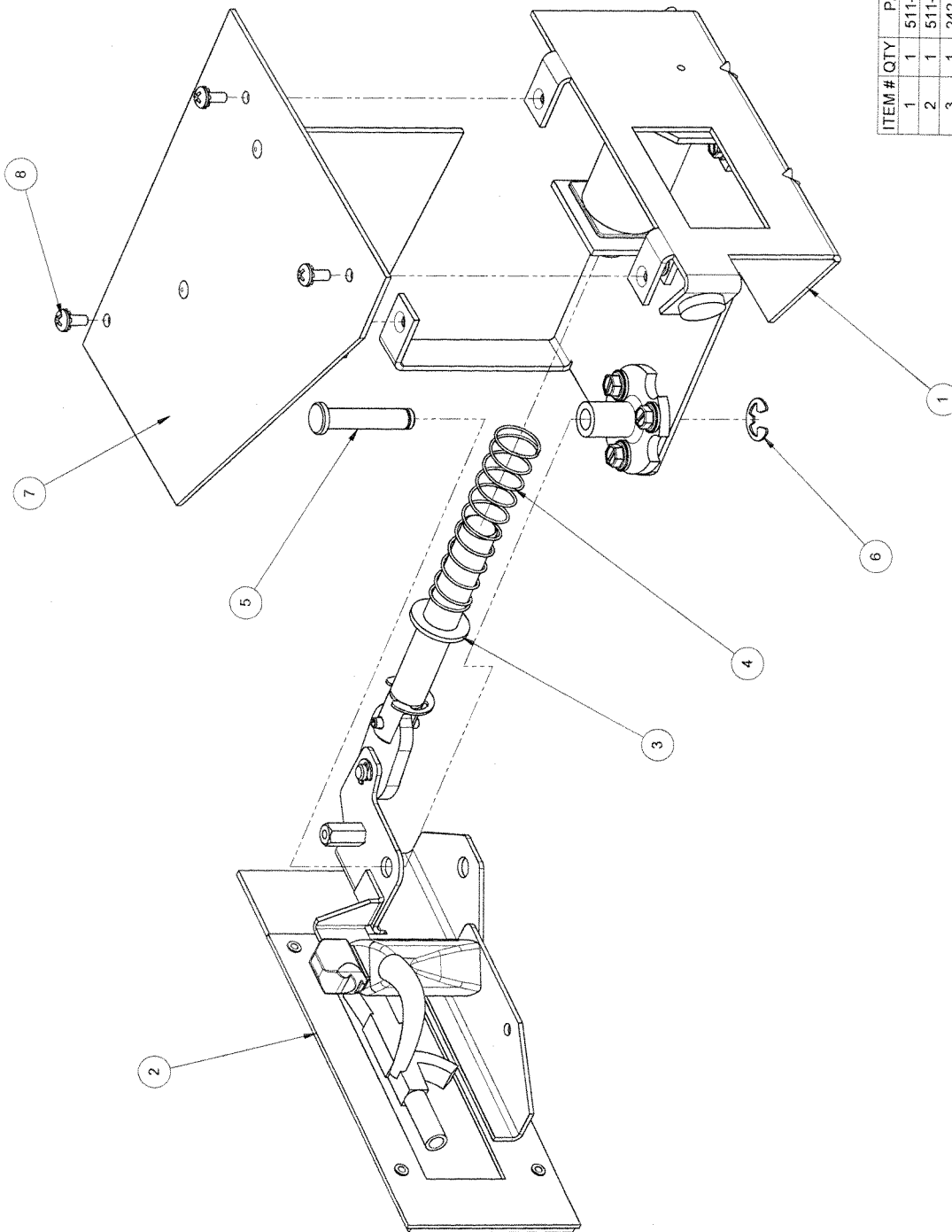
ITEM #	QTY	PART #	DESCRIPTION
1	1	535-0294-00	MOTOR BRACKET- STEPPER 24V
2	1	180-5119-02	MICRO-SWITCH - LIGHT ACTUATION
3	1	535-6539-00	SWITCH BODY PROTECT PLATE
4	2	237-5937-02	SCREW, 2-56 X 1/2" HWH MS
5	1	112-5003-00	DIODE - 1N4004
6	1	511-5072-00	MOTOR ASSEMBLY, STEPPER
7	4	237-6188-00	SCREW, M3x0.5 X 8MM PPH SEMS ZINC
8	1	242-5038-00	WASHER 13/64 ID X 5/8 OD X 1/16
9	1	515-7669-00	MOTOR CAM WELDMENT
10	1	237-6130-00	8-32 X 1/4 SET SCREW CUP PT
11	1	830-6079-21	BUTY # 21, SWITCH SPACER, 24
NOT SHN.	1	036-5534-11-A7	CABLE - SUITCASE MOTOR ASSEMBLY

SUITCASE STEPPER MOTOR ASSEMBLY

511-5092-00

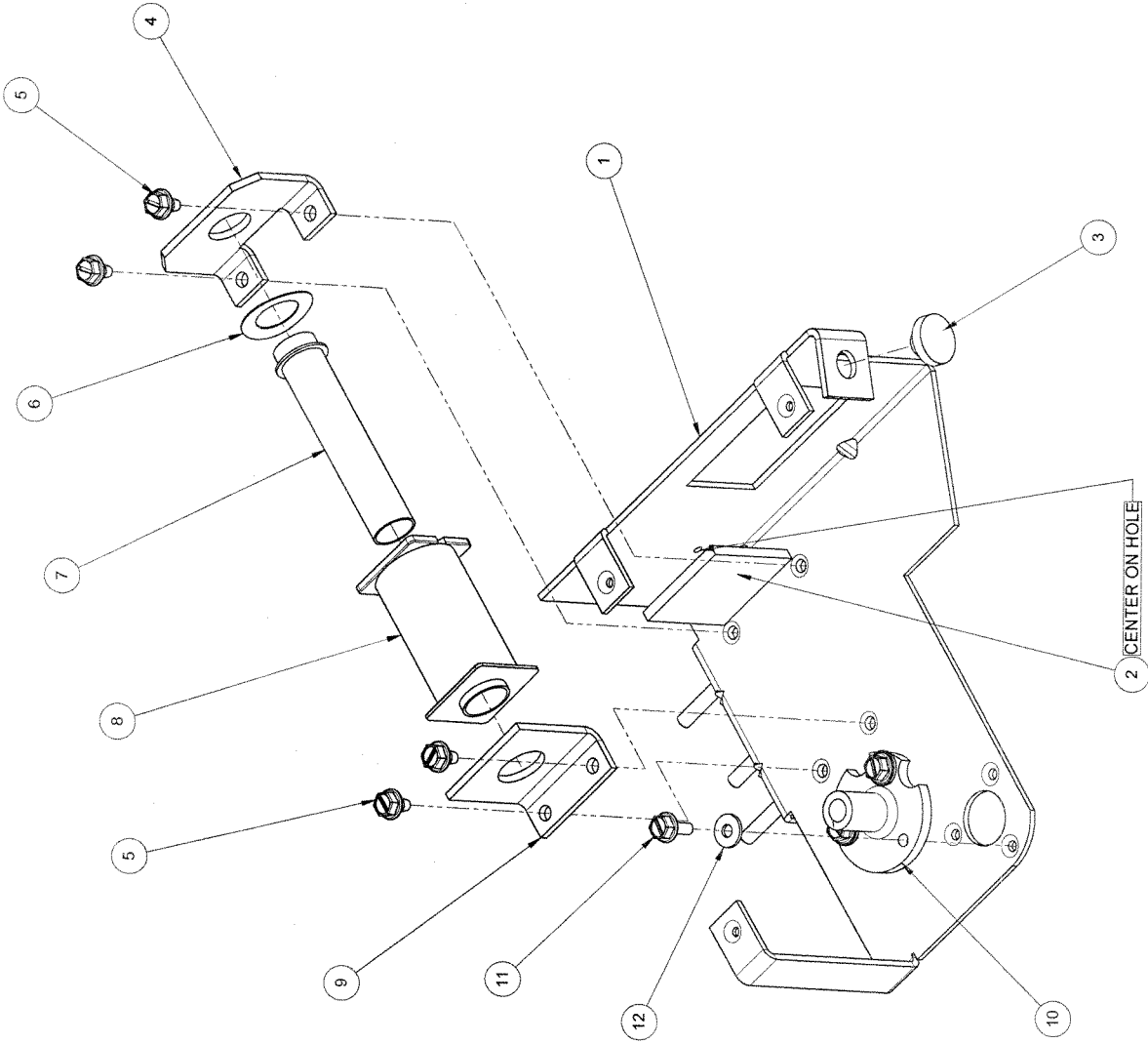
b27

b28



ITEM #	QTY	PART #	DESCRIPTION
1	1	511-5205-00	SNIPER BRACKET ASSEMBLY
2	1	511-5095-01	SNIPER DOOR ASSEMBLY
3	1	242-5081-00	WASHER - NYLON .75 OD x .44 ID
4	1	266-5034-01	COMPRESSION SPRING
5	1	530-6538-01	PIVOT PIN
6	1	270-5002-00	RETAINING RING - 1/4"
7	1	510-5094-23	BUTY ASSEMBLY #23 - SNIPER COVER
8	3	232-5208-00	SCREW, 6-32 X 5/16" PPH SEMS

SNIPER ASSEMBLY



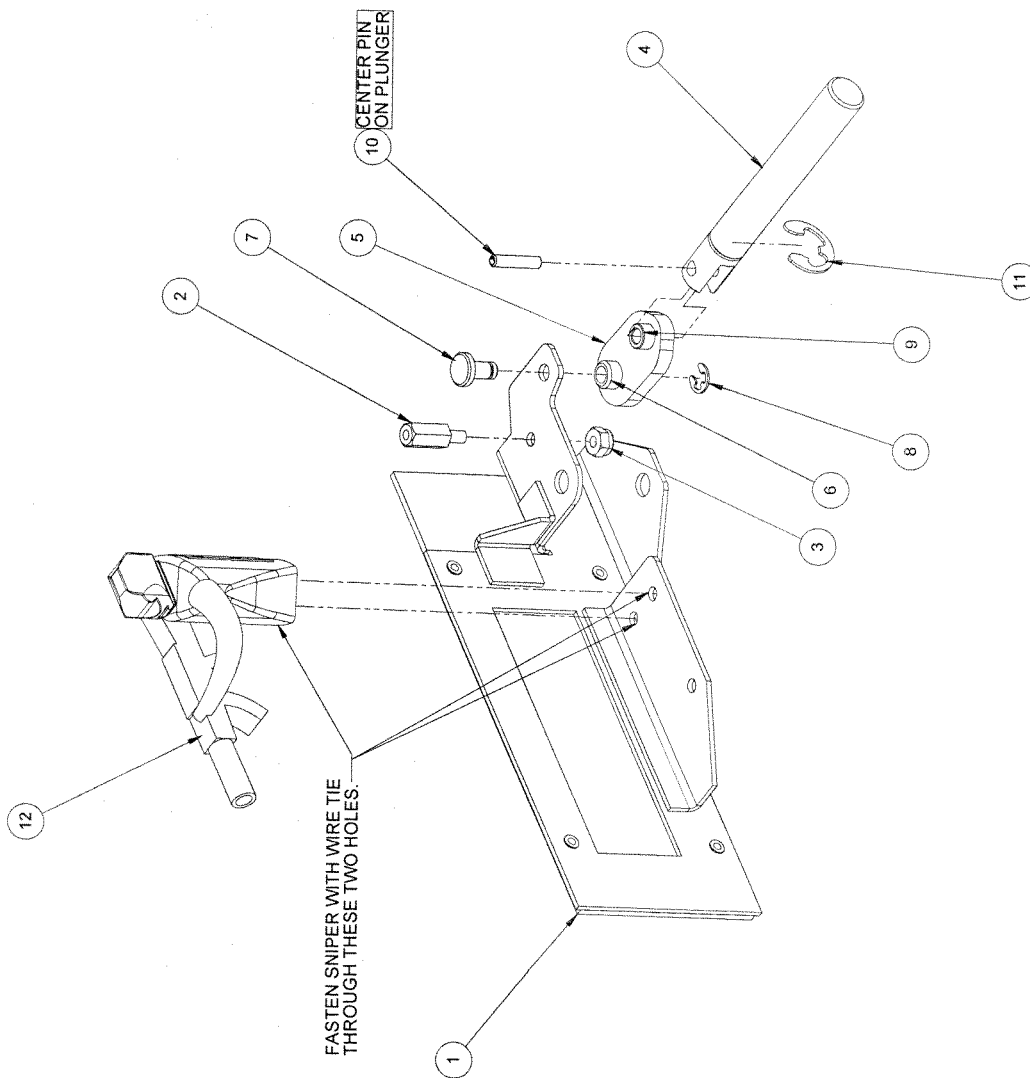
ITEM #	QTY	PART #	DESCRIPTION
1	1	515-7672-00	24-SNIPER BRACKET
2	1	626-5090-00	RUBBER BUMPER - BLUE
3	1	545-5105-00	RUBBER BUMPER
4	1	535-9777-01	COIL BRACKET-DT-OD
5	4	237-5975-04	SCREW, 8-32 X 1/4 HWH SWAGE SERR
6	1	269-5002-00	SPRING WASHER
7	1	545-5847-01	COIL SLEEVE
8	1	511-5206-00	COIL ASSEMBLY
9	1	535-0127-00	COIL BRKT
10	1	545-6322-00	BUSHING
11	3	237-5976-02	SCREW, 6-32 X 3/8" HWH
12	3	242-5001-00	#6 WASHER

SNIPER BRACKET ASSEMBLY

511-5205-00

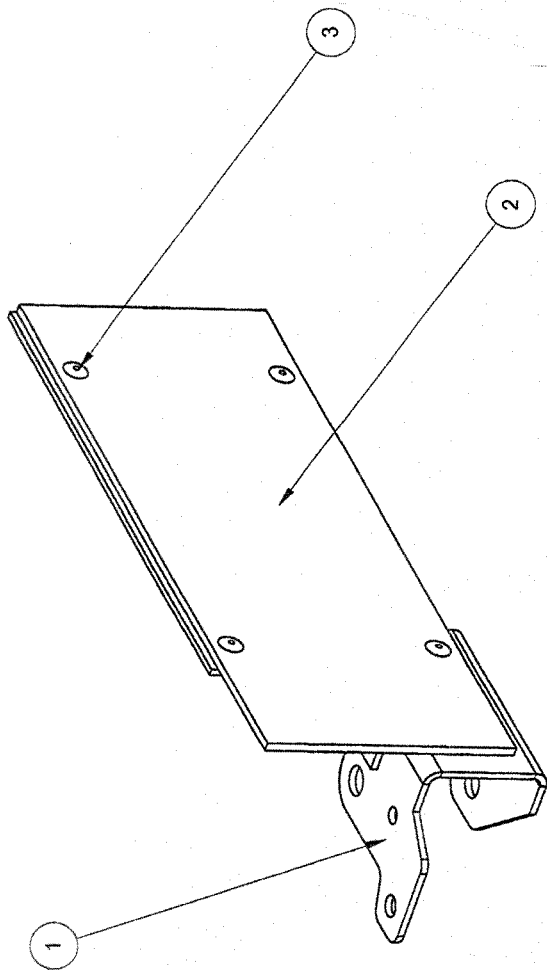
b29

b30



ITEM #	QTY	PART #	DESCRIPTION
1	1	510-5093-00	SNIPER DOOR RIVET ASSEMBLY
2	1	254-5049-03	HEX SPACER M/F 1/4" STUD - 1/2"
3	1	240-5005-00	6-32 NYLOK STOP NUT
4	1	530-6532-00	PLUNGER SHAFT
5	1	545-5611-01	PLUNGER FLIPPER LINK
6	1	530-5139-00	BUSHING (CRANK BAR)
7	1	530-5720-01	PIVOT PIN
8	1	270-5001-00	RETAINING E-RING, 3/16" SHAFT OD
9	1	530-5532-00	BUSHING (CRANK BAR)
10	1	251-5008-00	ROLL PIN, 1/8 X 5/8
11	1	270-5005-00	RETAINING E-RING, 7/16" SHAFT OD
12	1	545-6319-00	SNIPER - 24
NOT SHN	1	040-5001-02	WIRE TIE - 5-1/2"

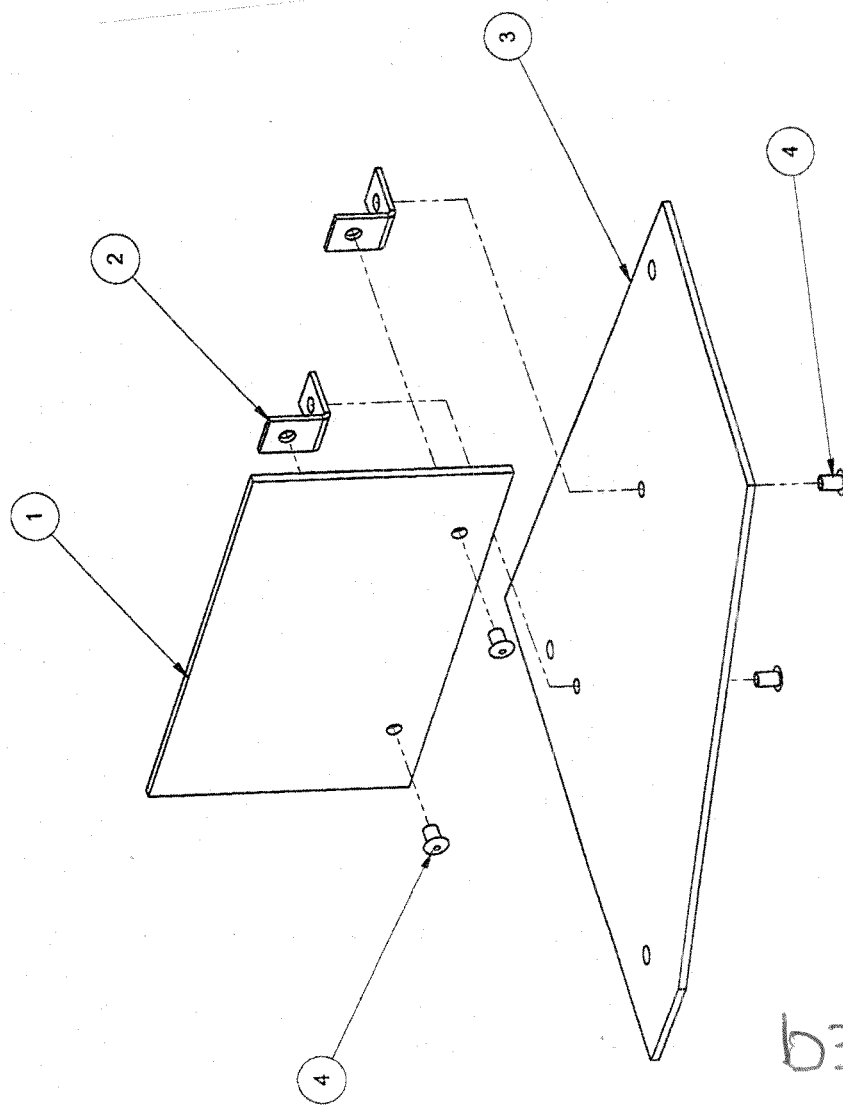
SNIPER DOOR ASSEMBLY



ITEM #	QTY	PART #	DESCRIPTION
1	1	515-7711-00	24-DOOR BRACKET
2	1	830-6079-81	BUTY #81 - SNIPER DOOR
3	4	249-5001-00	RIVET - 1/8 X 3/16

SNIPER DOOR RIVET ASSEMBLY

510-5093-00

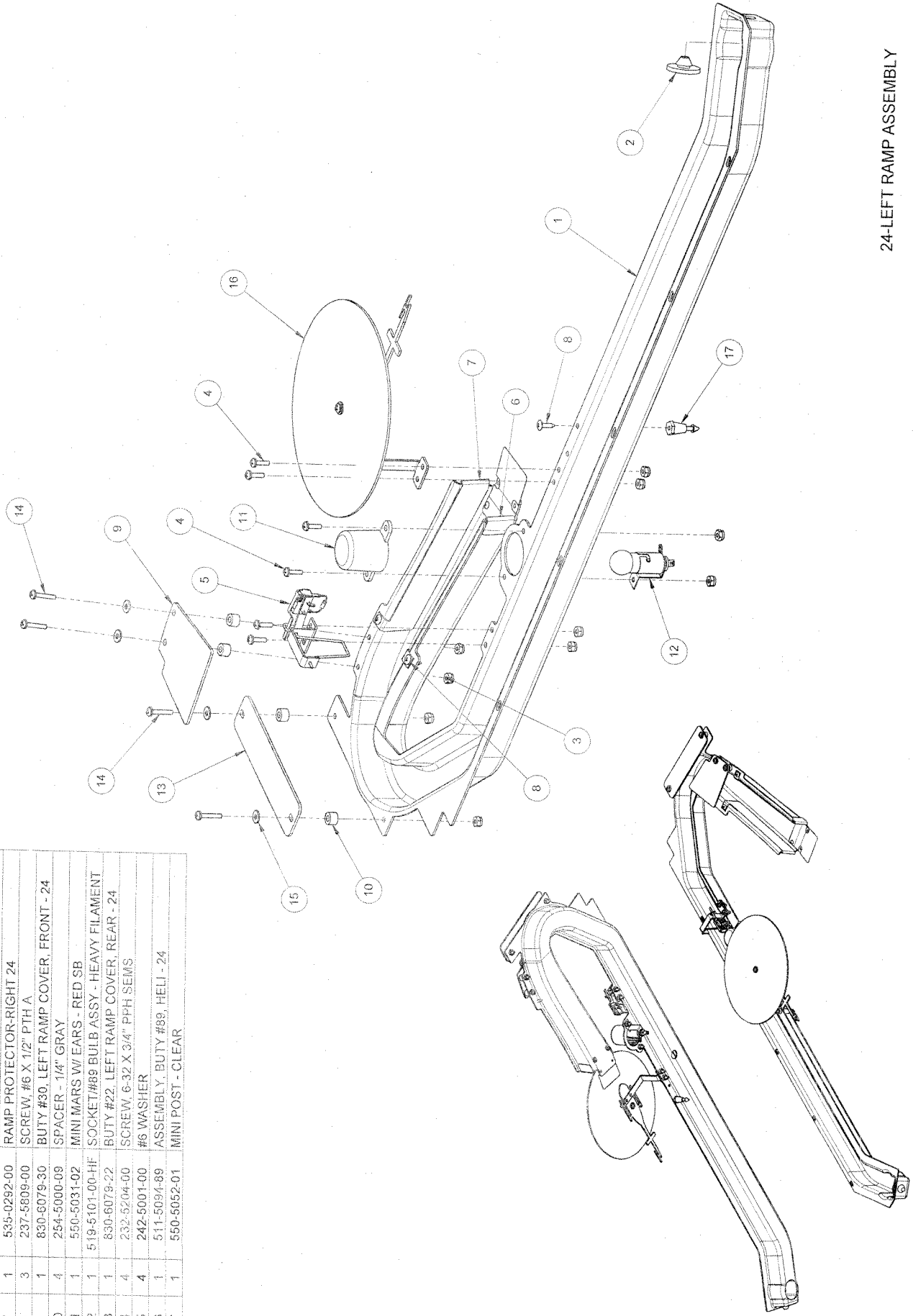


ITEM #	QTY	PART #	DESCRIPTION
1	1	830-6079-23	BUTY #23 - SNIPER
2	2	535-8941-04	BRACKET - PLASTIC MTG
3	1	830-6079-80	BUTY #80 - SNIPER ROOF
4	4	249-5001-00	RIVET - 1/8 X 3/16

BUTY ASSEMBLY #23 - SNIPER COVER

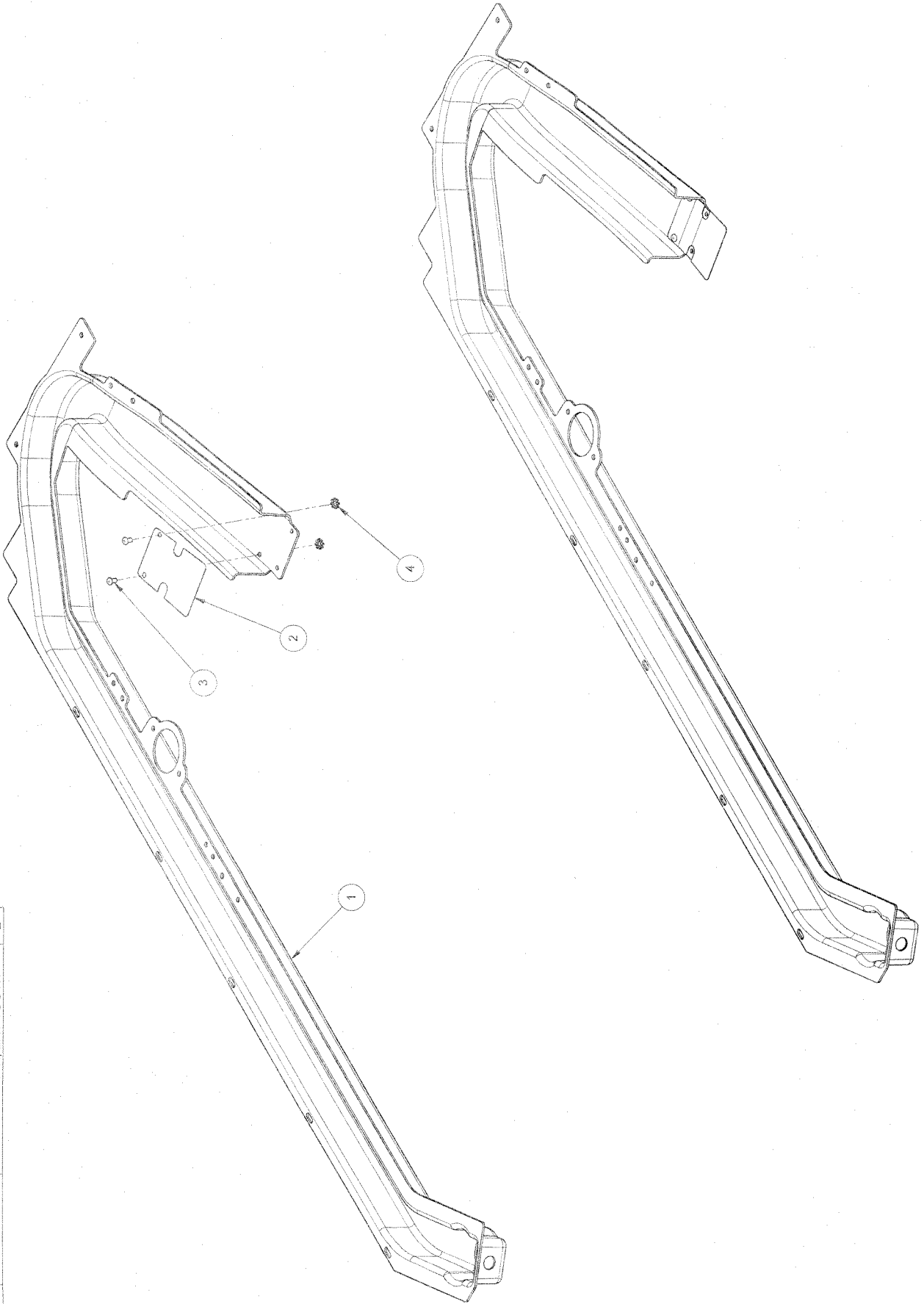
510-5094-23

ITEM #	QTY.	PART NUMBER	DESCRIPTION
1	1	510-5058-00	RIVETED ASSY, LEFT RAMP - 24
2	1	545-5428-00	RUBBER BUMPER
3	10	240-5005-00	6-32 NYLON STOP NUT
4	6	232-5202-00	SCREW, 6-32 X 1/2" PPH MS SEMS
5	1	515-6490-04-A7	GATE ASSEMBLY W/ CABLE, 24
6	1	535-0291-00	RAMP PROTECTOR-LEFT 24
7	1	535-0292-00	RAMP PROTECTOR-RIGHT 24
8	3	237-5809-00	SCREW, #6 X 1/2" PTH A
9	1	830-6079-30	BUTY #30, LEFT RAMP COVER, FRONT - 24
10	4	254-5000-08	SPACER - 1/4" GRAY
11	1	550-5031-02	MINI MARS W/ EARS - RED SB
12	1	519-5101-00-HF	SOCKET/#89 BULB ASSY - HEAVY FILAMENT
13	1	830-6079-22	BUTY #22, LEFT RAMP COVER, REAR - 24
14	4	232-5204-00	SCREW, 6-32 X 3/4" PPH SEMS
15	4	242-5001-00	#6 WASHER
16	1	511-5094-89	ASSEMBLY, BUTY #89, HELI - 24
17	1	550-5052-01	MINI POST - CLEAR



24-LEFT RAMP ASSEMBLY

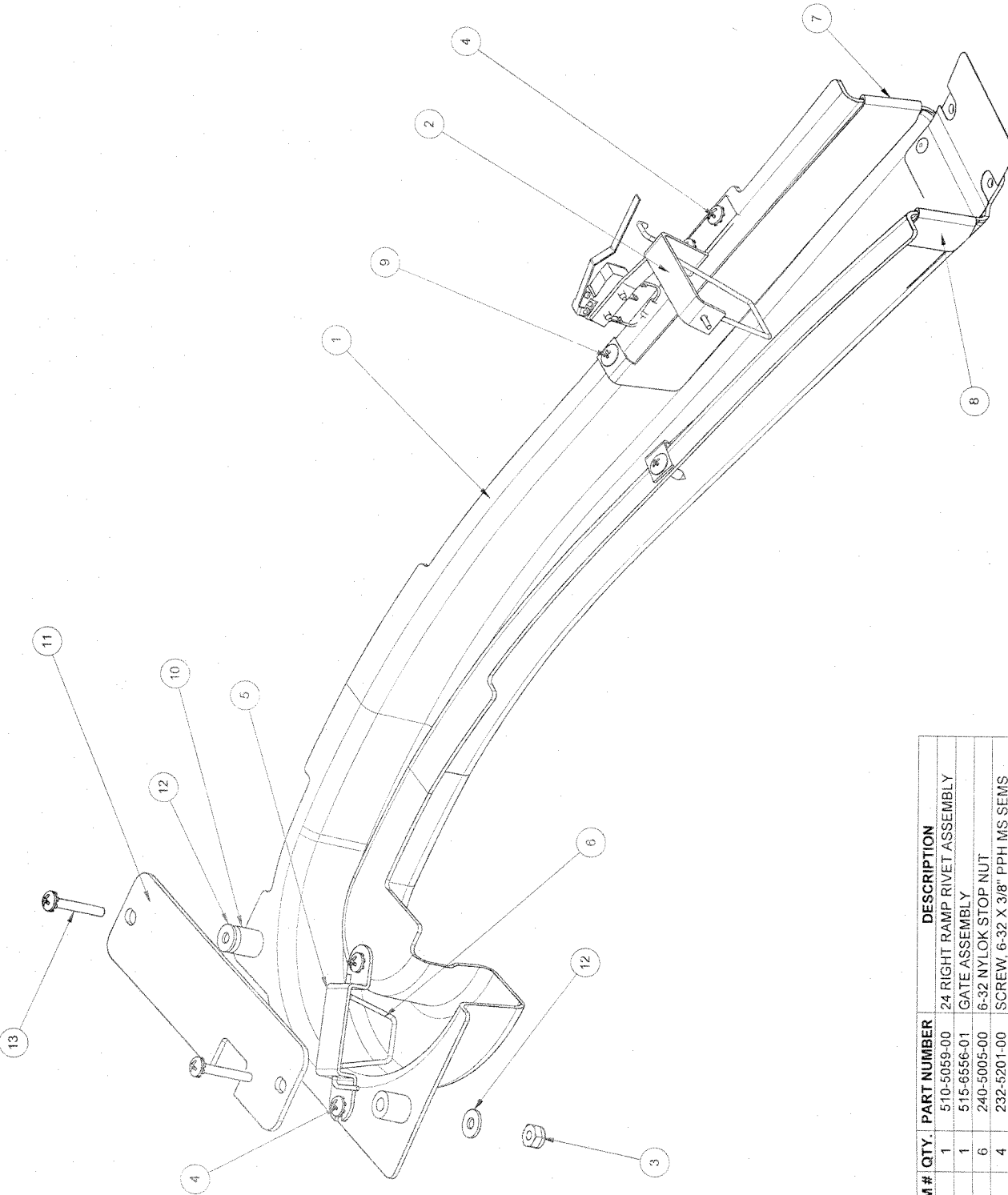
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	545-6308-00	24 VACUUM FORM RAMP, LEFT	1
2	535-0096-00	24 RAMP FLAP, LEFT	1
3	249-5003-00	RIVET - 1/8 X 1/4	2
4	246-5000-00	#6 LOCK WASHER, EXT TOOTH	2



RIVETED ASSY, LEFT RAMP - 24

510-5058-00

b33



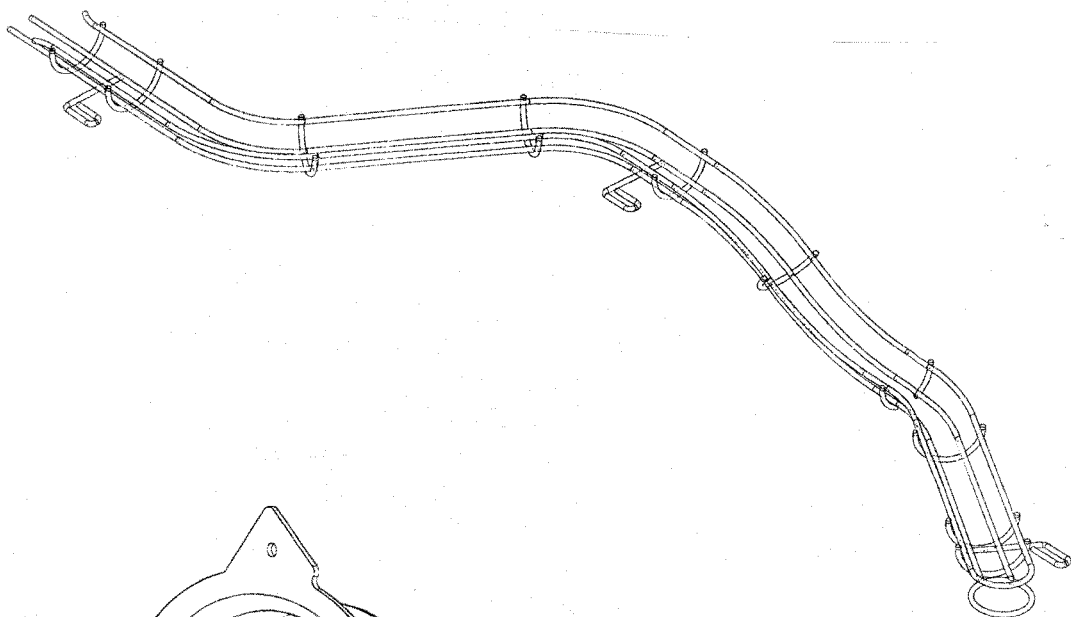
ITEM #	QTY.	PART NUMBER	DESCRIPTION
1	1	510-5059-00	24 RIGHT RAMP RIVET ASSEMBLY
2	1	515-6556-01	GATE ASSEMBLY
3	6	240-5005-00	6-32 NYLOK STOP NUT
4	4	232-5201-00	SCREW, 6-32 X 3/8" PPH MS SEMS
5	1	535-5269-03	ONE WAY GATE BRACKET
6	1	535-0298-00	WIRE GATE - BALL LOCK
7	1	535-0292-00	RAMP PROTECTOR-RIGHT 24
8	1	535-0291-00	RAMP PROTECTOR-LEFT 24
9	2	237-5809-00	SCREW, #6 X 1/2" PTH A
10	2	254-5000-12	SPACER - 3/8" GRAY
11	1	830-6079-31	BUTY #31, RIGHT RAMP COVER - 24
12	2	242-5001-00	#6 WASHER
13	2	232-5205-00	SCREW, 6-32 X 7/8" PPH SEMS

24 RIGHT RAMP ASSEMBLY

500-7101-00

b34

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	545-6309-00	24 RIGHT RAMP	1
2	535-0097-00	24 RAMP FLAP, RIGHT	1
3	249-5001-00	RIVET - 1/8 X 3/16	2
4	246-5000-00	#6 LOCK WASHER, EXT TOOTH	2



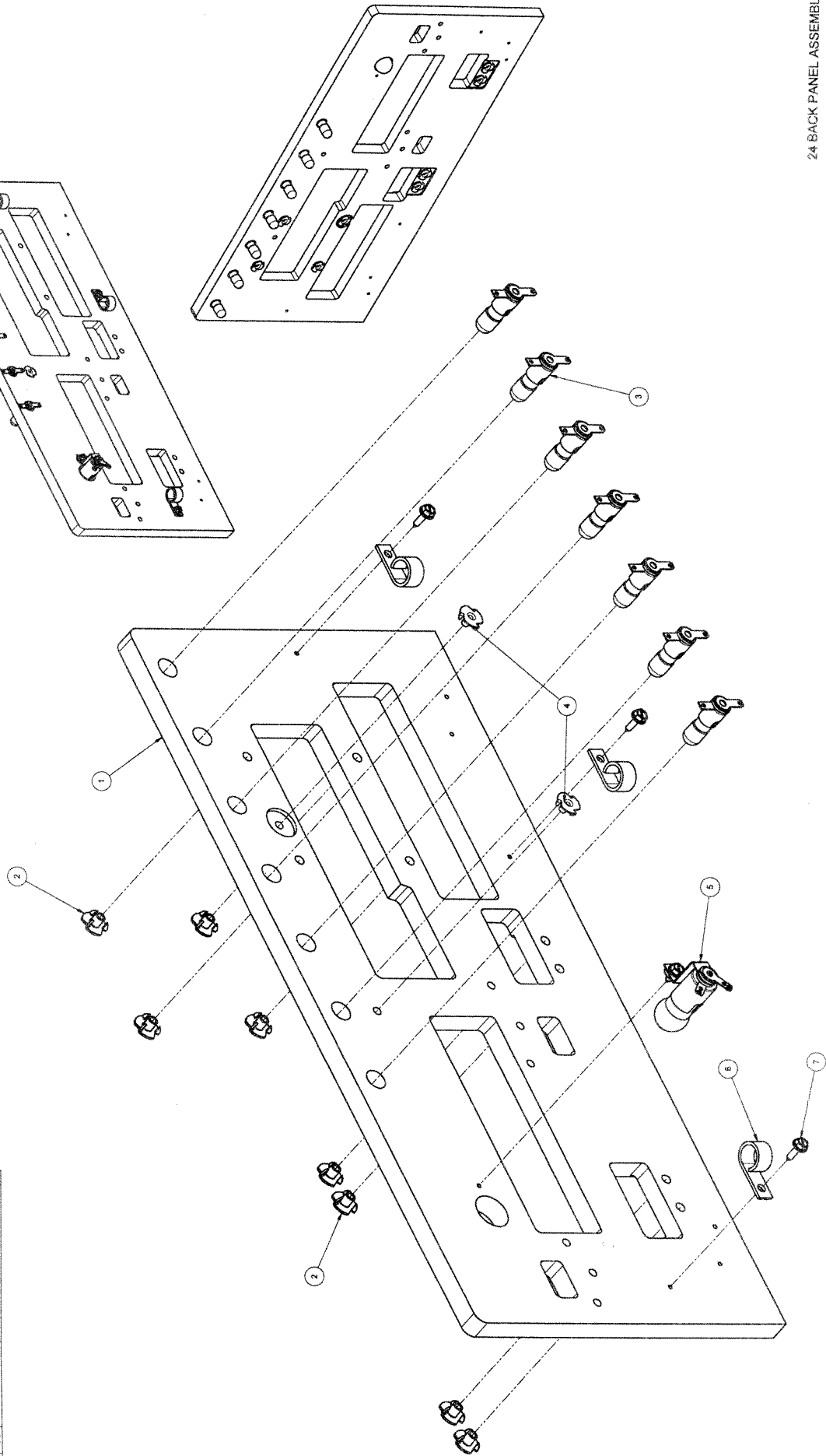
24 WIRE RAMP-RIGHT
515-7663-00

24 RIGHT RAMP RIVET ASSEMBLY

510-5059-00

b35

ITEM #	QTY.	PART NUMBER	DESCRIPTION
1	1	525-5890-00	24 BACK PANEL
2	8	240-5101-00	8-32 T NUT
3	7	519-5000-00-HF	SOCKET & BULB ASSY CLEAR
4	2	240-5002-00	8-32 T NUT
5	1	519-5101-00-HFA	SOCKET / #88 BULB / GRMT ASSY
6	3	040-5000-08	1/2" CABLE CLAMP
7	3	234-5001-02	SCREW #6 X 1/2" HWH
NOT SHN	1	036-5534-04-A7	CABLE BACK PANEL 24
NOT SHN	2 FT	600-5003-00	BRAIDED WIRE 20 GA.
NOT SHN	13	631-5000-00	STAPLE - 5/16



24 BACK PANEL ASSEMBLY

500-7112-00

b36



APPENDIX A



Pinball Game Firmware (White Star Board System* Only) Table

See website for the latest International Code or Updated USA version / checksums

ROM	Chip Size	Program Part N°	USA Ver. & Check Sum	Bd. Loc.	Raw Part N°
Apollo 13 (Note 1)					
Game ROM	(1M)	965-0208-00	A5.01 \$09FF	U210	960-5009-00
Sound	(512K)	965-0212-00	1.00 \$5244	U7	960-7001-02
Display	(4M)	965-0213-00	A5.00 \$B92B	ROM 0	960-5015-01
Voice 1	(4M)	965-0209-00	1.00 \$7FC7	U17	n/a (masked)
Voice 2	(4M)	965-0210-00	1.00 \$8E55	U21	n/a (masked)
Voice 3	(4M)	965-0211-00	1.00 \$08EE	U36	n/a (masked)
Golden Eye (Note 1)					
Game ROM	(1M)	965-0214-42	A4.04 \$3FFF	U210	960-5009-00
Sound	(512K)	965-0217-42	1.00 \$D615	U7	960-7001-02
Display	(4M)	965-0218-42	A4.00 \$E6ED	ROM 0	960-5015-01
Voice 1	(4M)	965-0215-42	1.00 \$3E32	U17	n/a (masked)
Voice 2	(4M)	965-0216-42	1.00 \$71F0	U21	n/a (masked)
Twister (Note 2)					
Game ROM	(1M)	965-0219-41	A4.05 \$E9FF	U210	960-5009-00
Sound	(512K)	965-0221-41	1.00 \$1FFF	U7	960-7001-02
Display	(4M)	965-0222-41	A4.00 \$FD01	ROM 0	960-5015-01
Voice 1	(4M)	965-0220-41	1.00 \$3650	U17	960-5015-01
Voice 2	(4M)	965-0223-41	1.00 \$9300	U21	960-5015-01
ID4: Independence Day (Note 2)					
Game ROM	(1M)	965-0224-45	A2.02 \$9CFF	U210	960-5009-00
Sound	(512K)	965-0227-45	1.00 \$222B	U7	960-7001-02
Display	(4M)	965-0228-45	A2.00 \$AB7	ROM 0	960-5015-01
Voice 1	(4M)	965-0225-45	1.00 \$34E1	U17	960-5015-01
Voice 2	(4M)	965-0226-45	1.00 \$206E	U21	960-5015-01
Space Jam (Note 2)					
Game ROM	(1M)	965-0229-43	A3.00 \$E6FF	U210	960-5009-00
Sound	(512K)	965-0233-43	1.00 \$F1E7	U7	960-7001-02
Display	(4M)	965-0234-43	A3.00 \$0057	ROM 0	960-5015-01
Voice 1	(4M)	965-0230-43	1.00 \$DBA8	U17	960-5015-01
Voice 2	(4M)	965-0231-43	1.00 \$DDF1	U21	960-5015-01
Voice 3	(4M)	965-0232-43	1.00 \$F32A	U36	960-5015-01
The Star Wars Trilogy - Special Edition (S.E.) (Note 2)					
Game ROM	(1M)	965-0235-56	A4.03 \$5EFF	U210	960-5009-00
Sound	(512K)	965-0238-56	1.00 \$4A7D	U7	960-7001-02
Display	(4M)	965-0239-56	A4.00 \$8817	ROM 0	960-5015-01
Voice 1	(4M)	965-0236-56	1.00 \$E66B	U17	960-5015-01
Voice 2	(4M)	965-0237-56	1.00 \$8F54	U21	960-5015-01
The Lost World: Jurassic Park (Note 2)					
Game ROM	(1M)	965-0240-53	A2.02 \$C8FF	U210	960-5009-00
Sound	(512K)	965-0243-53	1.00 \$A35B	U7	960-7001-02
Display	(4M)	965-0244-53	A2.01 \$7F46	ROM 0	960-5015-01
Voice 1	(4M)	965-0241-53	1.00 \$1D27	U17	960-5015-01
Voice 2	(4M)	965-0242-53	1.00 \$8DA4	U21	960-5015-01
The X-Files (Note 2)					
Game ROM	(1M)	965-0245-46	A3.03 \$A2FF	U210	960-5009-00
Sound	(512K)	965-0248-46	1.00 \$664A	U7	960-7001-02
Display	(4M)	965-0249-46	A3.00 \$66D0	ROM 0	960-5015-01
Voice 1	(4M)	965-0246-46	1.00 \$349D	U17	960-5015-01
Voice 2	(4M)	965-0247-46	1.00 \$629C	U21	960-5015-01
Starship Troopers (Note 3)					
Game ROM	(1M)	965-0250-59	A2.00 \$85FF	U210	960-5009-00
Sound	(512K)	965-0253-59	1.00 \$64B2	U7	960-7001-02
Display	(4M)	965-0254-59	A2.00 \$E77B	ROM 0	960-5015-01
Voice 1	(4M)	965-0251-59	1.00 \$152A	U17	960-5015-01
Voice 2	(4M)	965-0252-59	1.00 \$0291	U21	960-5015-01
Voice 3	(4M)	965-0255-59	1.00 \$95A7	U36	960-5015-01
Viper Night Drivin' (Note 4)					
Game ROM	(1M)	965-0266-35	A2.01 \$C5FF	U210	960-5009-00
Sound	(512K)	965-0271-35	1.00 \$4DF8	U7	960-7001-02
Display	(4M)	965-0272-35	A2.01 \$C17D	ROM 0	960-5015-01
Voice 1	(4M)	965-0267-35	1.00 \$9018	U17	960-5015-01
Voice 2	(4M)	965-0268-35	1.00 \$2157	U21	960-5015-01
Voice 3	(4M)	965-0269-35	1.00 \$B5A6	U36	960-5015-01
Voice 4	(4M)	965-0270-35	1.00 \$D01E	U37	960-5015-01
Lost In Space (Note 4)					
Game ROM	(1M)	965-0282-60	A1.01 \$B2FF	U210	960-5009-00
Sound	(512K)	965-0287-60	1.00 \$A6AF	U7	960-7001-02
Display	(4M)	965-0288-60	A1.02 \$32AB	ROM 0	960-5015-01
Voice 1	(4M)	965-0283-60	1.00 \$4391	U17	960-5015-01
Voice 2	(4M)	965-0284-60	1.00 \$8215	U21	960-5015-01
Voice 3	(4M)	965-0285-60	1.00 \$5B32	U36	960-5015-01
Voice 4	(4M)	965-0286-60	1.00 \$8971	U37	960-5015-01
Godzilla (Note 4)					
Game ROM	(1M)	965-0289-40	A2.05 \$B1FF	U210	960-5009-00
Sound	(512K)	965-0294-40	1.00 \$0CC9	U7	960-7001-02
Display	(4M)	965-0295-40	A3.00 \$C929	ROM 0	960-5015-01
Voice 1	(4M)	965-0290-40	1.00 \$0D75	U17	960-5015-01
Voice 2	(4M)	965-0291-40	1.00 \$CCCF	U21	960-5015-01
Voice 3	(4M)	965-0292-40	1.00 \$227F	U36	960-5015-01
Voice 4	(4M)	965-0293-40	1.00 \$DB69	U37	960-5015-01
South Park (Notes 4, 5)					
Game ROM	(1M)	965-0301-71	A1.03 \$58FF	U210	960-5009-00
Sound	(512K)	965-0306-71	1.00 \$1286	U7	960-7001-02
Display	(4M)	965-0307-71	A1.01 \$166F	ROM 0	960-5015-01
Voice 1	(8M)	965-0302-71	1.00 \$7BF8	U17	960-5016-00
Voice 2	(8M)	965-0303-71	1.00 \$9CC0	U21	960-5016-00
Voice 3	(8M)	965-0304-71	1.00 \$ADD9	U36	960-5016-00
Voice 4	(8M)	965-0305-71	1.00 \$6559	U37	960-5016-00

ROM	Chip Size	Program Part N ^o	USA Ver. & Check Sum	Bd. Loc.	Raw Part N ^o
Harley-Davidson® (Notes 4, 5, 6) Original (1999-2001)					
Game ROM	(1M)	965-0319-67	A1.03	\$3EFF	U210
Sound	(512K)	965-0320-67	1.00	\$F4F7	U7
Display	(4M)	965-0321-67	A1.04	\$FC7C	ROM 0
Voice 1	(8M)	965-0322-67	1.00	\$CD26	U17
Voice 2	(8M)	965-0323-67	1.00	\$9396	U21
Voice 3	(8M)	965-0324-67	1.00	\$FB72	U36
Voice 4	(4M)	965-0325-67	1.00	\$6100	U37
► Harley-Davidson® (Notes 4, 5, 6, 8) 2nd Edition (2002-2003)					
Game ROM	(1M)	965-0319-67A	A1.08	\$23FF	U210
Display	(4M)	965-0321-67A	A1.05	\$B594	ROM 0
► Harley-Davidson® (Notes 4, 5, 6, 8) 3rd Edition (2004)					
Game ROM	(1M)	965-0319-87	A4.00	\$1CFF	U210
Display	(4M)	965-0321-87	A4.00	\$14FF	U5
Striker Xtreme (Notes 4, 5)					
Game ROM	(1M)	965-0326-68	A1.03	\$E4FF	U210
Sound	(512K)	965-0327-68	1.00	\$3BCA	U7
Display	(4M)	965-0328-68	A1.03	\$1957	ROM 0
Voice 1	(8M)	965-0329-68	1.00	\$482A	U17
Voice 2	(8M)	965-0330-68	1.00	\$7312	U21
Voice 3	(8M)	965-0331-68	1.00	\$DE2F	U36
Voice 4	(8M)	965-0332-68	1.00	\$C508	U37
NFL (Notes 4, 5) Not on CD-R or Website: Code through Distributor Only.					
Game ROM	(1M)	965-0339-73	A1.00	\$D2FF	U210
Sound	(512K)	965-0340-73	1.00	\$5	U7
Display	(4M)	965-0341-73	A1.01	\$845A	ROM 0
Voice 1	(8M)	965-0342-73	1.00	\$	U17
Voice 2	(8M)	965-0343-73	1.00	\$	U21
Voice 3	(8M)	965-0344-73	1.00	\$	U36
Voice 4	(8M)	965-0345-73	1.00	\$	U37
Sharkey's Shootout (Notes 4, 5)					
Game ROM	(1M)	965-0333-72	A2.11	\$49FF	U210
Sound	(512K)	965-0334-72	1.01	\$9796	U7
Display	(4M)	965-0335-72	A2.01	\$6C33	ROM 0
Voice 1	(8M)	965-0336-72	1.00	\$58EA	U17
Voice 2	(8M)	965-0337-72	1.00	\$272B	U21
Voice 3	(8M)	965-0338-72	1.00	\$41AE	U36
High Roller Casino (Notes 4, 5)					
Game ROM	(1M)	965-0346-65	A3.00	\$90FF	U210
Sound	(512K)	965-0347-65	1.00	\$581C	U7
Display	(4M)	965-0348-65	A3.00	\$74B3	ROM 0
Voice 1	(8M)	965-0349-65	1.00	\$E12D	U17
Voice 2	(8M)	965-0350-65	1.00	\$38F4	U21
Voice 3	(8M)	965-0351-65	1.00	\$1B54	U36
Voice 4	(8M)	965-0352-65	1.00	\$D720	U37
Austin Powers™ (Notes 4, 5)					
Game ROM	(1M)	965-0353-74	A3.02	\$5DFF	U210
Sound	(512K)	965-0354-74	1.00	\$D47B	U7
Display	(4M)	965-0355-74	A3.00	\$6A3A	ROM 0
Voice 1	(8M)	965-0356-74	1.00	\$D2B9	U17
Voice 2	(8M)	965-0357-74	1.00	\$9E75	U21
Voice 3	(8M)	965-0358-74	1.00	\$51F3	U36
Voice 4	(8M)	965-0359-74	1.00	\$0AE5	U37
MONOPOLY® (Notes 4, 5)					
Game ROM	(1M)	965-0360-75	A3.20	\$07FF	U210
Sound	(512K)	965-0361-75	1.00	\$8C18	U7
Display	(4M)	965-0362-75	A3.01	\$A381	ROM 0
Voice 1	(8M)	965-0363-75	1.00	\$35E	U17
Voice 2	(8M)	965-0364-75	1.00	\$B35A	U21
Voice 3	(8M)	965-0365-75	1.00	\$8A9F	U36
Playboy (Notes 4, 5, 7)					
Game ROM	(1M)	965-0367-76	A5.00	\$7DFF	U210
Sound	(512K)	965-0368-76	1.02	\$E7C2	U7
Display	(4M)	965-0369-76	A5.00	\$A5FF	ROM 0
Voice 1	(8M)	965-0370-76	1.00	\$9ABE	U17
Voice 2	(8M)	965-0371-76	1.00	\$9F34	U21
Voice 3	(8M)	965-0372-76	1.00	\$374B	U36
Voice 4	(8M)	965-0373-76	1.00	\$237A	U37
RollerCoaster Tycoon™ (Notes 4, 5, 7)					
Sound	(512K)	965-0374-78	1.00	\$F663	U7
Game ROM	(1M)	965-0375-78	A7.02	\$E5FF	U210
Voice 1	(8M)	965-0377-78	1.00	\$3C4A	U17
Voice 2	(8M)	965-0378-78	1.00	\$057A	U21
Voice 3	(8M)	965-0379-78	1.00	\$04D7	U36
Display	(4M)	965-0376-78	A7.01	\$8DDB	U5 Disp. Cntr.
The Simpsons™ Pinball Party (Notes 4, 5, 7)					
Sound	(512K)	965-0381-77	1.01	\$A7EE	U7
Game ROM	(1M)	965-0382-77	A4.00	\$49FF	U210
Voice 1	(8M)	965-0383-77	1.00	\$9719	U17
Voice 2	(8M)	965-0384-77	1.00	\$16ED	U21
Voice 3	(8M)	965-0385-77	1.00	\$7CE	U36
Voice 4	(8M)	965-0386-77	1.00	\$E7E5	U37
Display	(4M)	965-0387-77	A4.00	\$8A03	U5 Disp PCB
Terminator® 3: Rise of the Machines™ (Notes 4, 5, 7)					
Sound	(512K)	965-0388-79	1.00	\$D2FD	U7
Game ROM	(1M)	965-0389-79	A4.00	\$F8FF	U210
Voice 1	(8M)	965-0390-79	1.00	\$1838	U17
Voice 2	(8M)	965-0391-79	1.00	\$F0D5	U21
Voice 3	(8M)	965-0392-79	1.00	\$89DA	U36
Voice 4	(8M)	965-0393-79	1.00	\$1200	U37
Display	(4M)	965-0394-79	A4.00	\$6E49	U5 Disp PCB
The Lord of the Rings™ (Notes 7, 8)					
Sound	(512K)	965-0401-80	1.01	\$36BC	U7
Game ROM	(1M)	965-0402-80	A10.00	\$84FF	U210
Voice 1	(8M)	965-0403-80	1.00	\$1792	U17
Voice 2	(8M)	965-0404-80	1.00	\$F711	U21
Voice 3	(8M)	965-0405-80	1.00	\$89B6	U36
Voice 4	(8M)	965-0406-80	1.00	\$EA49	U37
Display	(4M)	965-0407-80	A10.00	\$1669	U5 Disp PCB



APPENDIX A

Pinball Game Firmware (White Star Board System* & S.A.M. System** Only) Table



See website for the latest International Code or Updated USA version / checksums

ROM	Chip Size	Program Part N°	USA Ver. & Check Sum	Bd. Loc.	Raw Part N°
Ripley's Believe It or Not!® (Notes 7, 8)					
Sound	(512K)	965-0408-81	1.00 \$D93D	U7	960-7001-02
Game ROM	(1M)	965-0409-81	A3.20 \$43FF	U210	960-5009-00
Voice 1	(8M)	965-0410-81	1.00 \$067B	U17	960-5016-00
Voice 2	(8M)	965-0411-81	1.00 \$C8B8	U21	960-5016-00
Voice 3	(8M)	965-0412-81	1.00 \$64C2	U36	960-5016-00
Voice 4	(8M)	965-0413-81	1.00 \$5341	U37	960-5016-00
Display	(4M)	965-0414-81	A3.00 \$DE4B	U5 DC PCB	960-5015-01
Elvis® (Notes 7, 8)					
Sound	(512K)	965-0415-84	1.00 \$8CD2	U7	960-7001-02
Game ROM	(1M)	965-0416-84	A5.00 \$50FF	U210	960-5009-00
Voice 1	(8M)	965-0417-84	1.00 \$538D	U17	960-5016-00
Voice 2	(8M)	965-0418-84	1.00 \$8BCD	U21	960-5016-00
Voice 3	(8M)	965-0419-84	1.00 \$60F8	U36	960-5016-00
Voice 4	(8M)	965-0420-84	1.00 \$14D8	U37	960-5016-00
Display	(4M)	965-0421-84	A5.00 \$A1F6	U5 DC PCB	960-5015-01
The Sopranos™ (Notes 7, 8)					
Sound	(512K)	965-0422-85	4.00 \$9B5A	U7	960-7001-02
Game ROM	(1M)	965-0423-85	A5.00 \$5BFF	U210	960-5009-00
Voice 1	(8M)	965-0424-85	3.00 \$F01E	U17	960-5016-00
Voice 2	(8M)	965-0425-85	1.04 \$C14C	U21	960-5016-00
Voice 3	(8M)	965-0426-85	1.04 \$47A3	U36	960-5016-00
Voice 4	(8M)	965-0427-85	1.04 \$ADCD	U37	960-5016-00
Display	(4M)	965-0428-85	A5.00 \$B4BB	U5 DC PCB	960-5015-01
NASCAR® (Notes 7, 8)					
Sound	(512K)	965-0429-86	2.00 \$32B3	U7	960-7001-02
Game ROM	(1M)	965-0430-86	A4.50 \$39FF	U210	960-5009-00
Voice 1	(8M)	965-0431-86	2.00 \$CFFB	U17	960-5016-00
Voice 2	(8M)	965-0432-86	2.00 \$22C0	U21	960-5016-00
Voice 3	(8M)	965-0433-86	2.00 \$5FC8	U36	960-5016-00
Voice 4	(8M)	965-0434-86	2.00 \$2902	U37	960-5016-00
Display	(4M)	965-0435-86	A4.00 \$92BD	U5 DC PCB	960-5015-01
Grand Prix (Notes 7, 8)					
Sound	(512K)	965-0429-91	V1.00 \$6F89	U7	960-7001-02
Game ROM	(1M)	965-0430-91	A4.50 \$5EFF	U210	960-5009-00
Voice 1	(8M)	965-0431-91	1.00 \$CEB2	U17	960-5016-00
Voice 2	(8M)	965-0432-91	1.00 \$F4C6	U21	960-5016-00
Voice 3	(8M)	965-0433-91	1.00 \$05D7	U36	960-5016-00
Voice 4	(8M)	965-0434-91	1.00 \$2646	U37	960-5016-00
Display	(4M)	965-0435-91	A4.00 \$DA8E	U5 DC PCB	960-5015-01
[Dale Jr.] (Notes 7, 8) Call for more info if code update required.					
Sound	(512K)	965-0436-97		U7	960-7001-02
Game ROM	(1M)	965-0437-97		U210	960-5009-00
Voice 1	(8M)	965-0438-97		U17	960-5016-00
Voice 2	(8M)	965-0439-97		U21	960-5016-00
Voice 3	(8M)	965-0440-97		U36	960-5016-00
Voice 4	(8M)	965-0441-97		U37	960-5016-00
Display	(4M)	965-0442-97		U5 DC PCB	960-5015-01

**** GAMES BELOW THIS LINE / NEXT COLUMN ARE S.A.M. SYSTEM GAMES**

TO ORDER MEMORY STICK WITH GAME FILES FROM YOUR DISTRIBUTOR, USE SPI PART NUMBER 970-0128-00 & INCLUDE THE GAME NAME / LANGUAGE FILE(S) DESIRED.

World Poker Tour™ Pinball (WPT) (Notes 7, 9)					
Boot B-02	(8M)	965-BOOT-SAM	1.04 \$7E62	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	System		
English + Spanish		14AL	1.38+		
English Only		14A	1.17+		
French		14AF	1.17+		
French Only		14F	1.17+		
German + French		14GF	1.17+		
German Only		14G	1.17+		
English + Italian		14AI	1.17+		
Italian Only		14I	1.17+		

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 25MB – 30MB+/-

The Simpsons™ Kooky Carnival Redemption (Note 9)					
Boot B-02	(8M)	965-BOOT-SAM	1.04 \$7E62	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	Bin Files:		
English Only		1.05	SKC0105.bin		
English New Jersey Only		0.09NJ	SKC0090NJ.bin		

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 5.5MB +/-

©Disney's Pirates of the Caribbean Pinball (POTC) (Notes 7, 9)					
Boot B-02	(8M)	965-BOOT-SAM	1.06 \$2014	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	System		
English + Spanish		4.00AS	1.25+		
English + French		4.00AF	1.25+		
German + French		4.00GF	1.25+		
English + Italian		4.00AI	1.25+		

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 25MB – 30MB+/-

Family Guy™ Pinball (FG) (Notes 7, 9)					
Boot B-02	(8M)	965-BOOT-SAM	2.09 \$10A3	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	System		
English + Spanish		12.00AL	1.37+		
English + French		12.00AF	1.37+		
English + German		12.00AG	1.37+		
English + Italian		12.00AI	1.37+		

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 25MB – 30MB+/-

Spider-Man™ / Black Spider-Man™ Pinball (S-M) (Notes 7, 9)					
Boot B-02	(8M)	965-BOOT-SAM	2.1 \$F625	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	System		
English		1.92E	1.37+		
English + Spanish		1.92ES	1.37+		
English + French		1.92EF	1.37+		
German+French		1.92GF	1.37+		
English + Italian		1.92EI	1.37+		

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 25MB – 30MB+/-

Wheel of Fortune™ Pinball (WoF) (Notes 7, 9)					
Boot B-02	(8M)	965-BOOT-SAM	2.3 \$B83B	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	System		
English		5.0A	1.38+		
German		5.0G	1.38+		
French		5.0F	1.38+		
Italian		5.0I	1.38+		
Spanish		5.0IS	1.38+		

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 25MB – 30MB+/-

Shrek™ Pinball (S) (Notes 7, 9)					
Boot B-02	(8M)	965-BOOT-SAM	2.3 \$B83B	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	System		
English ONLY		1.4A	1.41+		

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 25MB – 30MB+/-

Indiana Jones™ Pinball (S) (Notes 7, 9)					
PB EPROM PE-2	(8M)	965-BOOT-SAM	3.1 \$4CF6	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	System		
English		1.13A	1.42+		

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 25MB – 30MB+/-

Batman™ Pinball (S) (Notes 7, 9)					
PB EPROM PE-2	(8M)	965-BOOT-SAM	3.1 \$4CF6	U9	960-5016-00 unprogrammed
Memory Stick 128MB (970-0128-00)					
		Version	System		
English		2.2E	1.45+		

SEE WEBSITE FOR UPDATES

NOTE: THE TYPICAL SIZE PER UNZIPPED BIN FILE IS 25MB – 30MB+/-

- footnotes:**
- 1 ROMs on CPU/Sound Bd.: 520-5136-00 (Stereo) & Display Cont. Bd.: 520-5055-01
 - 2 ROMs on CPU/Sound Bd.: 520-5136-10 (Mono) & Display Cont. Bd.: 520-5055-01
 - 3 ROMs on CPU/Sound Board: 520-5136-15* (Mono) (FCC 11-97) & Display Controller Board: 520-5055-02* (FCC 11-97)
 - 4 ROMs on CPU/Sound Bd.: 520-5136-16* (Mono) (FCC 02-98) & Display Controller Board: 520-5055-03* (FCC 02-98)
 - 5 This game uses 8MB VOICE ROMS at U17, U21, U36 & U37 (if 3 ROMs use U37 will be unused) requiring a Jumper at Loc. W6. Refer to CPU/Snd. Bd. Schematic (2 of 3).
 - 6 Harley-Davidson® 2nd Edition: For Game ROM, Sound & Display info (version, check sums, part numbers) call Tech Support or check our website (see back cover) for current versions or other info. Raw Part numbers are identical to the H-D® original.
 - 7 ToPS™ (Tournament Pinball System) READY!
 - 8 ROMs on CPU/Sound Board II (with ATMEL Processor): 520-5300-00 & Display Cont. Bd.: 520-5055-03* (FCC 02-98)
 - 9 Boot ROM (U9) on CPU/Sound Board (S.A.M. System): 520-5246-00

Game Revisions can be updated after the Production Run. This Table is accurate as of the printing of this manual. If any changes occurred, the next game manual will include the updated information. The version stated is USA. If there is a question as to the latest Code Revision, Check Sum or File Revision, call our Technical Support Dept., 1-800-542-5377 or 1-708-345-7700 (Select Opt. 1).

Our website www.SternPinball.com/GAME-code.shtml has the latest code which can be downloaded (an EPROM Burner and/or Memory Stick are required).



APPENDIX A

Pinball Game Firmware Table

EPROM	Chip Size	Program Part N°	USA Ver.	Bd. Loc.	Raw Part N°
Laser War					
CPU	(256K)	965-0004-00	LWAR.C5	C5	960-5007-00
Sound (old)	(256K)	965-0005-00		J5	960-5007-00
Sound (old)	(256K)	965-0006-00		J6	960-5007-00
Sound (old)	(256K)	965-0007-00		J7	960-5007-00
- OR -					
Sound	(256K)	965-0008-00		7F	960-5007-00
Sound 1	(512K)	965-0009-00		6F	960-7001-02
Sound 2	(512K)	965-0010-00		4F	960-7001-02
Secret Service					
CPU	(256K)	965-0011-00	A4-6	B5	960-5007-00
CPU	(256K)	965-0012-00	A4-6	C5	960-5007-00
Voice 1	(512K)	965-0014-00		6F	960-7001-02
Voice 2	(512K)	965-0015-00		4F	960-7001-02
Sound	(256K)	965-0013-00		7F	960-5007-00
Torpedo Alley					
CPU	(256K)	965-0016-00	A2-1	B5	960-5007-00
CPU	(256K)	965-0017-00	A2-1	C5	960-5007-00
Voice 1	(512K)	965-0018-00		6F	960-7001-02
Voice 2	(512K)	965-0020-00		4F	960-7001-02
Sound	(256K)	965-0018-00		7F	960-5007-00
Time Machine					
CPU	(128K)	965-0021-00	A2-4	B5	960-5006-00
CPU	(256K)	965-0022-00	A2-4	C5	960-5007-00
Voice 1	(512K)	965-0024-00		6F	960-7001-02
Voice 2	(512K)	965-0025-00		4F	960-7001-02
Sound	(256K)	965-0023-00		7F	960-5007-00
Playboy 35th Anniversary					
CPU	(256K)	965-0046-00	A2-4	B5	960-5007-00
CPU	(256K)	965-0047-00	A2-4	C5	960-5007-00
Voice 1	(512K)	965-0049-00		6F	960-7001-02
Voice 2	(512K)	965-0050-00		4F	960-7001-02
Sound	(256K)	965-0048-00		7F	960-5007-00
ABC Monday Night Football					
CPU	(128K)	965-0031-00	A2-7	B5	960-5006-00
CPU	(256K)	965-0032-00	A2-7	C5	960-5007-00
Voice 1	(512K)	965-0034-00		6F	960-7001-02
Voice 2	(512K)	965-0035-00		4F	960-7001-02
Sound	(256K)	965-0033-00		7F	960-5007-00
Robocop					
CPU	(256K)	965-0036-00	A3-4	B5	960-5007-00
CPU	(256K)	965-0037-00	A3-4	C5	960-5007-00
Voice 1	(512K)	965-0039-00		6F	960-7001-02
Voice 2	(512K)	965-0040-00		4F	960-7001-02
Sound	(256K)	965-0038-00		7F	960-5007-00
Phantom of the Opera					
CPU	(128K)	965-0026-00	A3-2	B5	960-5006-00
CPU	(256K)	965-0027-00	A3-2	C5	960-5007-00
Voice 1	(512K)	965-0029-00		6F	960-7001-02
Voice 2	(512K)	965-0030-00		4F	960-7001-02
Sound	(256K)	965-0028-00		7F	960-5007-00
Back to the Future					
CPU	(256K)	965-0041-00	A2-0	B5	960-5007-00
CPU	(256K)	965-0042-00	A2-0	C5	960-5007-00
Voice 1	(512K)	965-0044-00		6F	960-7001-02
Voice 2	(512K)	965-0045-00		4F	960-7001-02
Sound	(256K)	965-0043-00		7F	960-5007-00
The Simpsons					
CPU	(128K)	965-0051-00	A2-7	B5	960-5006-00
CPU	(256K)	965-0052-00	A2-7	C5	960-5007-00
Voice 1	(512K)	965-0054-00		6F	960-7001-02
Voice 2	(512K)	965-0055-00		4F	960-7001-02
Sound	(256K)	965-0053-00		7F	960-5007-00
Checkpoint					
CPU	(128K)	965-0056-00	A1-7	B5	960-5006-00
CPU	(256K)	965-0134-00	A1-7	C5	960-5007-00
Voice 1	(1M)	965-0057-00		F7	960-5009-00
Voice 2	(1M)	965-0058-00		F5	960-5009-00
Sound	(256K)	965-0059-00		F4	960-5007-00
Display	(512K)	965-0060-00	CP80	U8	960-7001-02
Teenage Mutant Ninja Turtles					
CPU	(128K)	965-0061-00	A1.04	B5	960-5006-00
CPU	(256K)	965-0062-00	A1.04	C5	960-5007-00
Voice 1	(1M)	965-0063-00		F5/6	960-5009-00
Voice 2	(1M)	965-0064-00		F4/5	960-5009-00
Sound	(256K)	965-0065-00		F7	960-5007-00
Display	(512K)	965-0066-00	A1.04	U8	960-7001-02
Batman					
CPU	(128K)	965-0067-00	A1.06	B5	960-5006-00
CPU	(256K)	965-0135-00	A1.06	C5	960-5007-00
Voice 1	(2M)	965-0068-00		U17	960-5010-00
Voice 2	(2M)	965-0069-00		U21	960-5010-00
Sound	(256K)	965-0070-00		U7	960-5007-00
Display	(1M)	965-0071-00	A1.06	U8	960-5009-00
Star Trek 25th Anniversary					
CPU	(512K)	965-0072-00	A2.01	C5	960-7001-02
Voice 1	(2M)	965-0073-00		U17	960-5010-00
Voice 2	(2M)	965-0074-00		U21	960-5010-00
Sound	(256K)	965-0075-00		U7	960-5007-00
Display	(1M)	965-0076-00	A1.09	U8	960-5009-00
Hook					
CPU	(512K)	965-0077-00	A4.08	C5	960-7001-02
Voice 1	(2M)	965-0078-00		U17	960-5010-00
Voice 2	(2M)	965-0079-00		U21	960-5010-00
Sound	(256K)	965-0080-00		U7	960-5007-00
Display	(1M)	965-0081-00	A4.01	U8	960-5009-00

EPROM	Chip Size	Program Part N ^o	USA Ver.	Bd. Loc.	Raw Part N ^o
Lethal Weapon 3					
CPU	(512K)	965-0082-00	A2.08	C5	960-7001-02
Voice 1	(2M)	965-0083-00		U17	960-5010-00
Voice 2	(2M)	965-0084-00		U21	960-5010-00
Sound	(256K)	965-0085-00		U7	960-5007-00
Display	(2M)	965-0086-00	A2.06	ROM 0	960-5010-00
Display	(2M)	965-0087-00	A2.06	ROM 1	960-5010-00
(Used on Display PCB 520-5055-00)					
-OR-					
Display	(4M)	965-0087-04	A2.06 (Used on Display PCB 520-5055-01)	ROM 0	960-5015-00
Star Wars					
CPU	(512K)	965-0119-00	A1.03	C5	960-7001-02
Voice 0	(4M)	965-0132-00		U17	960-5015-00
Voice 1	(2M)	965-0133-00		U21	960-5010-00
Sound	(256K)	965-0131-00		U7	960-5007-00
Display	(2M)	965-0120-00	A1.04	ROM 0	960-5010-00
Display	(2M)	965-0121-00	A1.04	ROM 1	960-5010-00
(Used on Display PCB 520-5055-00)					
-OR-					
Display	(4M)	965-0122-00	A1.05 (Used on Display PCB 520-5055-01)	ROM 0	960-5015-00
Rocky & Bullwinkle & Friends					
CPU	(512K)	965-0138-00	A1.30	C5	960-7001-02
Voice 0	(4M)	965-0139-00		U17	960-5015-00
Voice 1	(2M)	965-0140-00		U21	960-5010-00
Sound	(256K)	965-0141-00		U7	960-5007-00
Display	(4M)	965-0142-00	A1.30	ROM 0	960-5015-00
Jurassic Park					
CPU	(512K)	965-0143-00	A5.13	C5	960-7001-02
Voice 0	(4M)	965-0144-00		U17	960-5015-00
Voice 1	(2M)	965-0145-00		U21	960-5010-00
Sound	(256K)	965-0146-00		U7	960-5007-00
Display	(4M)	965-0147-00	A5.10	ROM 0	960-5015-00
Last Action Hero					
CPU	(512K)	965-0148-00	A1.12	C5	960-7001-02
Voice 0	(4M)	965-0149-00		U17	960-5015-00
Voice 1	(2M)	965-0150-00		U21	960-5010-00
Sound	(256K)	965-0151-00		U7	960-5007-00
Display	(4M)	965-0152-00	A1.06	ROM 0	960-5015-00
Tales from the Crypt					
CPU	(512K)	965-0157-00	A3.03	C5	960-7001-02
Voice 0	(4M)	965-0158-00		U17	960-5015-00
Voice 1	(2M)	965-0159-00		U21	960-5010-00
Sound	(256K)	965-0160-00		U7	960-5007-00
Display	(4M)	965-0161-00	A3.01	ROM 0	960-5015-00
The Who's Tommy					
CPU	(512K)	965-0162-00	A4.00	C5	960-7001-02
Voice 1	(4M)	965-0165-00		U17	960-5015-00
Voice 2	(4M)	965-0166-00		U21	960-5015-00
Voice 3	(4M)	965-0167-00		U36	960-5015-00
Voice 4	(4M)	965-0168-00		U37	960-5015-00
Sound	(512K)	965-0164-00		U7	960-7001-02
Display	(4M)	965-0163-00	A4.00	ROM 0	960-5015-00
WWF Royal Rumble					
CPU	(512K)	965-0169-00	A1.06	C5	960-7001-02
Voice 1	(4M)	965-0172-00		U17	960-5015-00
Voice 2	(4M)	965-0173-00		U21	960-5015-00
Voice 3	(4M)	965-0174-00		U36	960-5015-00
Sound	(512K)	965-0171-00	A1.02	U7	960-7001-02
Display	(4M)	965-0170-00		ROM 0	960-5015-00
Guns N' Roses					
CPU	(512K)	965-0175-00	A3.00	C5	960-7001-02
Voice 1	(4M)	965-0178-00		U17	960-5015-00
Voice 2	(4M)	965-0179-00		U21	960-5015-00
Voice 3	(4M)	965-0180-00		U36	960-5015-00
Voice 4	(4M)	965-0181-00		U37	960-5015-00
Sound	(512K)	965-0177-00		U7	960-7001-02
Display	(4M)	965-0176-00	A3.00	ROM 0	960-5015-00
Maverick *					
CPU	(512K)	965-0182-00	A4.04	C5	960-7001-02
Voice 1	(4M)	965-0186-00		U17	960-5015-00
Voice 2	(4M)	965-0187-00		U21	960-5015-00
Voice 3	(4M)	965-0187-01		U36	960-5015-00
Sound	(512K)	965-0185-00		U7	960-7001-02
Display*	(4M)	965-0183-00	A4.01	ROM 0	960-5015-00
Display*	(4M)	965-0184-00	A4.01	ROM 3	960-5015-00
Mary Shelley's Frankenstein *					
CPU	(512K)	965-0188-00	A1.03	C5	960-7001-02
Voice 1	(4M)	965-0192-00		U17	960-5015-00
Voice 2	(4M)	965-0193-00		U21	960-5015-00
Voice 3	(4M)	965-0194-00		U36	960-5015-00
Sound	(512K)	965-0191-00		U7	960-7001-02
Display*	(4M)	965-0189-00	A1.03	ROM 0	960-5015-00
Display*	(4M)	965-0190-00	A1.03	ROM 3	960-5015-00
Baywatch * (CPU Board 520-5003-04)					
CPU	(512K)	965-0195-00	A4.00	C5	960-7001-02
Voice 1	(4M)	965-0196-00		U17	960-5015-00
Voice 2	(4M)	965-0197-00		U21	960-5015-00
Sound	(512K)	965-0199-00		U7	960-7001-02
Display*	(4M)	965-0200-00	A4.00	ROM 0	960-5015-00
Display*	(4M)	965-0201-00	A4.00	ROM 3	960-5015-00
Batman Forever * (CPU Board 520-5003-04)					
CPU	(512K)	965-0202-00	A3.02	C5	960-7001-02
Voice 1	(4M)	965-0203-00		U17	960-5015-00
Voice 2	(4M)	965-0204-00		U21	960-5015-00
Sound	(512K)	965-0205-00		U7	960-7001-02
Display*	(4M)	965-0206-00	A3.00	ROM 0	960-5015-00
Display*	(4M)	965-0207-00	A3.00	ROM 3	960-5015-00

APPENDIX B

Semi-Conductors / Integrated Circuits (I.C.) / Relays Cross-Reference Table

Table No	Type	Source Number	STERN® PINBALL	N T E®	E C G®	Radio Shack®	R C A®
RECTIFICATION, BLOCKING, DAMPENING DIODES AND/OR LIGHT EMITTING DIODES (LEDs)							
1	Diode	1N4001	112-5001-00	NTE552	ECG552	- - - - -	SK9000
	Diode	1N4004	112-5003-00	NTE116	ECG116	276-1103	SK3312
	Diode	1N5401	112-0056-00	NTE5801	ECG5801	276-1143	SK9004
	Diode	1N5404	112-5004-00	NTE5804	ECG5804	276-1144	SK9007
	Diode	T6A10L	112-5006-01	NTE5812	ECG5812	- - - - -	- - - - -
	Diode	FR302	112-5009-00	NTE588	ECG588	- - - - -	SK5014
	Diode, Signal	1N914	112-5014-00	- - - - -	- - - - -	- - - - -	- - - - -
	LED	MT5000UR or TLRH180P (T1-3/4 GaAlAs)	165-5052-00 (old SPI Part No: 165-5100-00)	- - - - -	- - - - -	276-066B	- - - - -
ZENER DIODES							
2	Diode	1N4742A 12v	112-0061-00	NTE142A	ECG142A	276-563	SK12V
	Diode	1N4760B 68v	112-0062-00B	NTE5092A	ECG5092A	- - - - -	SK68V
	Diode	1N4764A 100v	112-0049-00A	NTE5096A	ECG5096A	- - - - -	SK100V
	Diode	1N5228 3.9v	112-0053-00	NTE5007A	ECG5007A	- - - - -	SK3A9
	Diode	1N5234B 6.2v	112-0047-00B	NTE5013A	ECG5013A	276-561	SK6A2
	Diode	1N5379 110v	112-0072-00	NTE5157	ECG5157	- - - - -	SK110X
	Diode	1N6267A 6.8v	112-5011-00	NTE4902	ECG4902	- - - - -	- - - - -
	Diode	1N4752A 33v	112-5010-00A	NTE147A	ECG147A	- - - - -	SK33V
3	Diode	1N4736 6.8v 1w	112-5007-00	NTE5071A	ECG5071A	- - - - -	- - - - -
	TRANSISTORS - TYPE FET, NPN, PNP AND/OR SCR						
	FET Trans.	STP20N10L	110-0106-00	NTE2987	ECG2987	- - - - -	- - - - -
	FET Trans.	STP19N06L	110-0088-00	NTE2985	ECG2985	- - - - -	- - - - -
	FET Trans.	VN02N	110-0089-00	- - - - -	- - - - -	- - - - -	- - - - -
	NPN Trans.	2N4401	110-0073-00	NTE85	ECG85	276-2009	SK3124A
	NPN Trans.	2N6427	110-0070-00	NTE48	ECG48	- - - - -	SK4906
	NPN Trans.	MJE340	110-0071-00	NTE157	ECG157	- - - - -	SK3747
4	NPN Trans.	MPSA42	110-0082-00	NTE287	ECG287	- - - - -	SK3232
	NPN Trans.	2N3904	110-0069-00	NTE123AP	ECG123AP	276-2009	- - - - -
	NPN Trans.	TIP122	110-0067-00	NTE261	ECG261	276-2068	SK3896
	NPN Trans.	MJE15030	110-0101-00	NTE375	ECG375	- - - - -	SK9118
	PNP Trans.	2N5401	110-0078-00	NTE288	ECG288	- - - - -	SK3434
	PNP Trans.	MJE15031	110-0103-00	NTE292	ECG292	- - - - -	SK3441
	PNP Trans.	MJE350	110-0072-00	NTE374	ECG374	- - - - -	SK9042
	PNP Trans.	MPSA92	110-0100-00	NTE288	ECG278	- - - - -	SK3434
5	PNP Trans.	TIP42	110-0068-00	NTE332	ECG332	- - - - -	SK9236
	PNP Trans.	TIP32C	110-0081-00	NTE292	ECG292	- - - - -	SK3441
	PNP Trans.	TIP36C	110-0077-00	NTE393	ECG393	- - - - -	SK3961
	SCR Trans.	2N5060	110-0074-00	NTE5400	ECG5400	276-1067	SK3950
	SCR Trans.	SCR2800B	110-0083-00	NTE5461-8	ECG5461-8	- - - - -	- - - - -
	BRIDGE RECTIFIERS (BR)			Comments:			
	BR (Present)	DB3501 or CM3501	112-5000-00	For White Star I/O Bds., BR = 35 Amp @ 100v P.I.V.			
	RELAYS			Comments:			
5	Relay	FRL-264 D024/02CK	190-5002-00	For PPB, Power Supply, & White Star I/O Boards, Relay = 24v DC 10 Amp DPDT			
	Relay	FRL-264 D006/04CV	190-5001-00	For CPU Boards, Relay = 6v DC 5 Amp 4 Pole DT			





APPENDIX C

Production Start Date, Manual Part No., ROM Size & Positions and Jumper W6 Installed Note‡ (White Star Board System & S.A.M. System Only*)

SAM

Game Name White Star Bd. System™	Production Start Date and Manual Part Nr.	CPU/Sound Board Sound U7 512K CPU/Sound Board Game U210 1MB CPU/Sound Board Voice ROMS:				Jumper Installed (+ see Note)	
		U17	U21	U36	U37		
* Note: For complete Appendix Information for Games Laser War through Batman Forever , see any Service Game Manual between Apollo 13 through Ripley's Believe It or Not! or on-line at our website www.sternpinball.com/parts.htm ; also available on CD-R, 970-2003-00 (The Simpsons™ Pinball Party , T3® and The Lord of the Rings™).							
29	Apollo 13 (A13)	NOV 95 780-5044-00	4MB	4MB	4MB	Not Used	n / a
30	Golden Eye	FEB 96 780-5042-00	4MB	4MB	Not Used	Not Used	n / a
31	Twister	APR 96 780-5041-00	4MB	4MB	Not Used	Not Used	n / a
32	ID4: Independence Day	JUL 96 780-5045-00	4MB	4MB	Not Used	Not Used	n / a
33	Space Jam	OCT 96 780-5043-00	4MB	4MB	4MB	Not Used	n / a
34	The Star Wars Trilogy - Sp. Ed.	FEB 97 780-5056-00	4MB	4MB	Not Used	Not Used	n / a
35	The Lost World: Jurassic Park	JUN 97 780-5053-00	4MB	4MB	Not Used	Not Used	n / a
36	The X-Files	AUG 97 780-5046-00	4MB	4MB	Not Used	Not Used	n / a
37	Starship Troopers	NOV 97 780-5059-00	4MB	4MB	4MB	Not Used	n / a
38	Viper Night Drivin'	FEB 98 780-5035-00	4MB	4MB	4MB	4MB	n / a
39	Lost In Space	JUN 98 780-5060-00	4MB	4MB	4MB	4MB	n / a
40	Godzilla	SEP 98 780-5040-00	4MB	4MB	4MB	4MB	n / a
41	South Park	JAN 99 780-5071-00	8MB	8MB	8MB	8MB	W6
42a	Harley-Davidson®	AUG 99 780-5067-01	8MB	8MB	8MB	8MB	W6
42b	Harley-Davidson® 2nd Ed.	SEP 02 780-5067-10	8MB	8MB	8MB	8MB	W6
42c	Harley-Davidson® 3rd Ed.	OCT 04 780-5087-00	8MB	8MB	8MB	8MB	W6
43a	Striker Xtreme	MAR 00 780-5068-01	8MB	8MB	8MB	8MB	W6
43b	NFL	OCT 00 780-5073-00	8MB	8MB	8MB	8MB	W6
44	Sharkey's Shootout	JUL/OCT 00 780-5072-01	8MB	8MB	8MB	Not Used	W6
45	High Roller Casino	JAN 01 780-5065-00	8MB	8MB	8MB	8MB	W6
46	Austin Powers™	MAY 01 780-5074-00	8MB	8MB	8MB	8MB	W6
47	MONOPOLY®	SEP 01 780-5075-00	8MB	8MB	8MB	Not Used	W6
48	Playboy	FEB 02 780-5076-00	8MB	8MB	8MB	8MB	W6
49	RollerCoaster Tycoon™	AUG 02 780-5078-00	8MB	8MB	8MB	Not Used	W6
50	The Simpsons™ Pinball Party	JN 03/JUL 07 780-5077-08	8MB	8MB	8MB	8MB	W6
51	T3®: Rise of the Machines™	MAY 03 780-5079-00	8MB	8MB	8MB	8MB	W6
52	The Lord of the Rings™	NOV 03 780-5080-00	8MB	8MB	8MB	8MB	
53	Ripley's Believe It or Not!®	APR 04 780-5081-00	8MB	8MB	8MB	8MB	

‡ Additional Information for **Installed Jumper** (above games 41-51):

• Installed **W6** so 8MB ROMs can be utilized. See the **CPU/Sound Board Schematic** (Sheet 2 of 3, Address Location 3E) in the games' Service Game Manual. Games 52 - 57 CPU/Sound Board differ than <51 (See Appendix D).

See **Apdx. A** for more detailed information on **Pinball Game Firmware** (ROM Name, Size, Part Numbers, USA Version & Checksum and Board Locations).

Game Name White Star Board System™		Production Start Date and Manual Part Nr.	CPU/Sound Board Sound U7 512K CPU/Sound Board Game U210 1MB CPU/Sound Board Voice ROMS:			
			U17	U21	U36	U37
54	Elvis®	AUG 04 780-5084-00	8MB	8MB	8MB	8MB
55	The Sopranos SM	FEB 05 780-5085-00	8MB	8MB	8MB	8MB
56	NASCAR®	JUL 05 780-5086-00	8MB	8MB	8MB	8MB
56 SE	Dale Jr. NASCAR® Special Edition	AUG 07 780-5097-00	8MB	8MB	8MB	8MB
57	Grand Prix	SEP 05 780-5091-00	8MB	8MB	8MB	8MB

See **Apdx. A** for more detailed information on **Pinball Game Firmware** (ROM Name, Size, Part Numbers, USA Version & Checksum and Board Locations).

Game Name S.A.M. System	Production Start Date and Manual Part Nr.	S.A.M. System CPU/Sound Board Boot EPROM U9			
		965-BOOT-SAM (Programmed)			
58	World Poker Tour™ (WPT)	JUN 06 780-5088-00	8MB	B-02 V2.1+ chksum \$F625	LOC: U9
59	The Simpsons™ Kooky Carnival	APR 06 780-5090-00	8MB	B-02 V2.1+ chksum \$F625	LOC: U9
60	©Disney's Pirates of the Caribbean	AUG 06 780-5092-00	8MB	B-02 V2.1+ chksum \$F625	LOC: U9
61	Famil Guy™	DEC 06 780-5093-00	8MB	B-02 V2.1+ chksum \$F625	LOC: U9
62	Spider-Man™	MAY 07 780-5094-00	8MB	B-02 V2.1+ chksum \$F625	LOC: U9
62 SE	Black Spider-Man™	NOV 07 780-50A6-00	8MB	B-02 V2.1+ chksum \$F625	LOC: U9
63	Wheel of Fortune™	NOV 07 780-5098-00	8MB	B-02 V2.3+ chksum \$B83B	LOC: U9
64	SHREK™	JAN 08 780-50A5-00	8MB	B-02 V2.3+ chksum \$B83B	LOC: U9
65	Indiana Jones™	APR 08 780-50A4-00	8MB	PE-2 V3.1+ chksum \$4CF6	LOC: U9
66	BATMAN™	AUG 08 780-50A3-00	8MB	PE-2 V3.1+ chksum \$4CF6	LOC: U9

Games 58 – current, S.A.M. System : CPU/Sound & I/O Power Driver PCBs differ than White Star (previous Games 29 – 57); Disp. Controller Not Required.



APPENDIX D

Board Type (White Star Board System* Only) Table



Game Name	Flipper	I/O Power Driver	CPU/Sound Stereo	Disp. Power Supply	Dot Matrix Display	Display Controller	OPTO Transmitter	OPTO Receiver	OPTO Application
Apollo 13	520-5080-00 2-Flipper	520-5137-00	520-5136-00	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-01	520-5124-00 Single OPTO	520-5125-00 Single OPTO	5-Ball Trough over Up-Kicker
	Miscellaneous PC Boards:	Light Boards 520-5130-01, -04 & -05 Magnet Interface, 7-Segment Display & Light Bd. 520-5130-06 Magnet Driver Board 520-5130-02 Switch Membrane Board 520-5130-03				Relay Board 520-5010-00			
Golden Eye	520-5080-00 2-Flipper	520-5137-00	520-5136-00	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-01	520-5124-00 Single OPTO	520-5125-00 Single OPTO	5-Ball Trough over Up-Kicker
	Miscellaneous PC Boards:	Light Boards 520-5128-05 through -08		Mag. Processor X2 Driver Bd. 520-5143-00		Relay Board 520-5010-00			
GAMES HEREON NO LONGER REQUIRE THE FLIPPER BOARD WITH THE WHITE STAR BOARD SYSTEM™									
Game Name	I/O Power Driver	CPU/Sound Mono	Disp. Power Supply	Dot Matrix Display	Display Controller	OPTO Transmitter	OPTO Receiver	OPTO Application	Misc OPTO & App.
Twister	520-5137-01	520-5136-10	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-01	520-5124-00 Single OPTO	520-5125-00 Single OPTO	5-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	Light Boards 520-5145-01 through -07		Mag. Drv. Bd. 520-5143-00	Relay Board 520-5010-00				
Independence Day (ID4)	520-5137-01	520-5136-10	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-01	520-5124-00 Single OPTO	520-5125-00 Single OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	Light Boards 520-5149-01 through -10		Servo Mtr. Bd. 520-5152-00		520-5082-00 Long Hop opto	520-5083-00 Long Hop opto	Alien Head Enter	
Space Jam	520-5137-01	520-5136-10	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-01	520-5124-00 Single OPTO	520-5125-00 Single OPTO	5-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	2X 7-Segment Display Board 520-5153-00							
The Star Wars Trilogy - Special Ed.	520-5137-01	520-5136-10	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-01	520-5124-00 Single OPTO	520-5125-00 Single OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	Relay Board 520-5010-00							
The Lost World: J.P.	520-5137-01	520-5136-10	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-01	520-5124-00 Single OPTO	520-5125-00 Single OPTO	4-Ball Trough over Up-Kicker	520-5162-00 2-Pos. Motor Sensor on Snagger Motor
	Miscellaneous PC Boards:	DC Relay Bd. 520-5066-00	Shaker Mtr. Bd. 520-5065-00						
The X-Files	520-5137-01	520-5136-10	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-01	520-5124-00 Single OPTO	520-5125-00 Single OPTO	4-Ball Trough over Up-Kicker	520-5155-00 3-Pos. Motor Sensor on File Cab. Motor
	Miscellaneous PC Boards:					520-5082-00 Long Hop opto	520-5083-00 Long Hop opto	File Cabinet Enter	
Starship Troopers	520-5137-01	520-5136-15	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-02	520-5124-00 Single OPTO	520-5125-00 Single OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	4X 7-Segment Display Board 520-5166-00				520-5082-00 Long Hop opto	520-5083-01 Long Hop opto	L/R Orbit Lane Enter	
Viper Night Drivin'	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	520-5124-00 Single OPTO	520-5125-00 Single OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	Relay Board 520-5010-00				520-5082-00 Long Hop opto	520-5083-01 Long Hop opto	Jump Ramp	
Lost In Space	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	Relay Board 520-5010-00							
Godzilla	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	Shaker Mtr. Bd. 520-5065-00							
South Park	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	5-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:					520-5082-00 Long Hop opto	520-5083-01 Long Hop opto	Kenny Under Trough Enter	
Harley-Davidson® 1st-3rd* Editions	520-5137-01	520-5136-16 *520-5300-00*	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	Relay Board 520-5010-00	Shaker Mtr. Bd. 520-5065-00	Diode Board 520-5146-00		520-5082-00 Long Hop opto	520-5083-01 Long Hop opto	Motorcycle Enter	
Striker Xtreme (NFL)	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	520-5155-00 3-Pos. Motor Sensor on Goalie Motor
	Miscellaneous PC Boards:	DC Relay Bd. 520-5066-00	Relay Board 520-5010-00	Diode Board 520-5146-00	for UK ONLY> Solenoid Expander Bd. 520-5192-00	520-5082-00 Long Hop opto	520-5083-01 Long Hop opto	Goalie Under-Trough Enter	
Sharkey's Shootout	520-5137-64	520-5136-64	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	520-5194-00 4-Pos. Motor Sensor on ?-Ball Motor
	Miscellaneous PC Boards:	Relay Board 520-5010-00	Sol. Exp. Bd. 520-5192-00						
High Roller Casino	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	520-5194-00 4-Pos. Motor Sensor on Roulette Wheel Motor
	Miscellaneous PC Boards:	Dot Display (5X7) in Slot Mach. 520-5197-00			for UK ONLY> Solenoid Expander Bd. 520-5192-00	520-5082-00 Long Hop opto	520-5083-01 Long Hop opto	Ball Lock under Roulette	
Austin Powers™	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	520-5212-00 Pulse-Stretcher OPTO on Spini-Me
	Miscellaneous PC Boards:	Relay Bd. (X3) 520-5010-00			for UK ONLY> Solenoid Expander Bd. 520-5192-00	520-5082-00 Long Hop opto	520-5083-01 Long Hop opto	Time Machine Ramp	
MONOPOLY®	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	DC Relay Bd. 520-5066-00	Mini-Dot Display (3 by 5X7) 520-5197-00 (Electric C- Sign)		for UK ONLY> Solenoid Expander Bd. 520-5192-00	520-5218-00 4-Pos. OPTO	520-5210-00 4-Pos. OPTO	Bank Door	

Table continued on the next page.





APPENDIX D

Board Type (White Star Board System* & S.A.M. System** Only) Table

SAM

Game Name	I/O Power Driver	CPU/Sound (old & new)	Disp. Power Supply	Dot Matrix Display	Display Controller	OPTO Transmitter	OPTO Receiver	OPTO Application	Misc OPTO & App.
Playboy	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	DC Relay Bd. 520-5066-00	Relay Bd. 520-5010-00		for UK ONLY> Sol- enoid Expander Bd. 520-5192-00				
RollerCoaster Tycoon™	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	520-5222-00 1-Position Switch Detect on Wheel Spin
	Miscellaneous PC Boards:	DC Relay Bd. 520-5066-00	Mini-Dot Display (3 by 5X7) 520-5221-00 (Ramp Enter Sign)		for UK ONLY> Sol- enoid Expander Bd. 520-5192-00	520-5082-00 Long Hop OPTO	520-5083-01 Long Hop OPTO	Behind 1-Bank Drop Target	
The Simpsons™ Pinball Party	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:	LED Bd. 520-5219-00	Color Dot Display (4 by 5X7) 520-5225-00 (TV Set)		for UK ONLY <<<< Aux. Driver Bd. 520-5068-01				
Terminator® 3: Rise of the Machines™	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:				for UK ONLY <<<< Aux. Driver Bd. 520-5068-01	515-7307-00 Single OPTO	515-7308-00 Single OPTO	TX Cannon Trough	
The Lord of the Rings™	520-5137-01	520-5136-16	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	500-6746-00 (White Trans.) 500-6747-00 (Black Rec.)
	Miscellaneous PC Boards:	19-LED PCB 520-5242-00	OPTO Transmitter / Receiver Amplifier PCB 520-5239-00		for UK ONLY <<<< Aux. Driver Bd. 520-5068-01	515-7307-00 Single OPTO	515-7308-00 Single OPTO	Orthanc Tower Trough	
Ripley's Believe It or Not!®	520-5137-01	520-5300-00	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	500-6775-00 OPTO Trnscvr
	Miscellaneous PC Boards:	520-5236-00 X3 Dot Display	OPTO Transmitter / Receiver Amplifier PCB 520-5239-01		for UK ONLY <<<< Aux. Driver Bd. 520-5068-01	520-5234-00 3-Pos. OPTO	520-5234-00 3-Pos. OPTO	Vari-Target	520-5235-03 X3 Aux. Drvr
Elvis®	520-5137-01	520-5300-00	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:				for UK ONLY <<<< Aux. Driver Bd. 520-5068-01				
The Sopranos™	520-5137-01	520-5300-00	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	
	Miscellaneous PC Boards:				for UK ONLY <<<< Aux. Driver Bd. 520-5068-01				
NASCAR® and [NDSE]	520-5137-01	520-5300-00	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	500-6775-00 OPTO Trans. (Qty. 16) Switch Detect.
	Miscellaneous PC Boards:	520-5235-03 X3 Aux. Drvr	OPTO Transmitter / Receiver Amplifier PCB 520-5239-01		for UK ONLY <<<< Aux. Driver Bd. 520-5068-01				
Grand Prix	520-5137-01	520-5300-00	520-5138-00	520-5052-00 128 X 32 Dots	520-5055-03	515-0173-00 Dual OPTO	515-0174-00 Dual OPTO	4-Ball Trough over Up-Kicker	500-6775-00 OPTO Trans. (Qty. 16) Switch Detect.
	Miscellaneous PC Boards:	520-5235-03 X3 Aux. Drvr	OPTO Transmitter / Receiver Amplifier PCB 520-5239-01		for UK ONLY <<<< Aux. Driver Bd. 520-5068-01				

Game Name	I/O Power Driver**	CPU / Sound**	Disp. Power Supply	Dot Matrix Display	Dual OPTO Transmitter	Dual OPTO Receiver	Dual OPTO Transceiver	OPTO Transceiver Miscellaneous
World Poker Tour™ (WPT)	520-5249-00 Backbox	520-5246-00 Backbox	520-5138-00 Backbox	520-5052-00 128 X 32 Dots	515-0173-00 4-Ball Trough	515-0174-00 4-Ball Trough	500-6775-00 4 Switch Pairs (Qty. 8)	520-5251-00 'U' 1/per PCB Jail Bars Up Ace/Hole Mech 520-5252-04 'U' 4/per PCB Drop Targets 4- & 8- Banks
	Miscellaneous PCBs :	520-5254-00 50V Step-Up Drv	520-5250-14 14LED 5X7 Disp.	520-5239-01 OPTO Amplifier	520-5247-00 Ace/Hole Mech	520-5248-00 Ace/Hole Mech		
The Simpsons™ Kooky Carnival	520-5249-00 Back Door	520-5246-00 Back Door	520-5138-00 Cabinet Rear	520-5052-00 128 X 32 Dots			520-5253-00-ASY Coin Drop (Qty. 11)	
	Miscellaneous PCBs :	515-5742-00 Shaker PCB	500-6700-00 Relay (incl. Wiring + Conn.)					
©Disney's Pirates of the Caribbean	520-5249-00 Backbox	520-5246-00 Backbox	520-5138-00 Backbox	520-5052-00 128 X 32 Dots	515-0173-00 4-Ball Trough	515-0174-00 4-Ball Trough	500-6775-00 5 Switch Pairs (Qty. 10)	
	Miscellaneous PCBs :	520-5239-01 OPTO Amp. (X3)	511-5024-03 Relay (incl. Wiring + Conn.)					
Family Guy™ & SHREK™	520-5249-00 Backbox	520-5246-00 Backbox	520-5138-00 Backbox	520-5052-00 128 X 32 Dots	515-0173-00 4-Ball Trough	515-0174-00 4-Ball Trough	500-6775-00 3 Switch Pairs (Qty. 6)	520-5252-01 'U' 1/per PCB Drop Target 1-Bank
	Miscellaneous PCBs :	520-5239-01 OPTO Amp. (X2)	520-5261-00 Stepper Motor	511-5042-01 Trgt. Sensor (X2)			500-6775-01 1 Switch Pair (Qty. 2)	520-5252-04 'U' 4/per PCB Drop Target 4-Bank
Spider-Man™ & Black Spider-Man	520-5249-00 Backbox	520-5246-00 Backbox	520-5138-00 Backbox	520-5052-00 128 X 32 Dots	515-0173-00 4-Ball Trough	515-0174-00 4-Ball Trough	500-6775-00 3 Switch Pairs (Qty. 6)	
	Miscellaneous PCBs :	520-5239-01 OPTO Amp. (X2)						
Wheel of Fortune™	520-5249-00 Backbox	520-5246-00 Backbox	520-5138-00 Backbox	520-5052-00 128 X 32 Dots	515-0173-00 4-Ball Trough	515-0174-00 4-Ball Trough	500-6775-01 2 Switch Pairs (Qty. 4)	520-5255-00 In-Line OPTO PCB Drop Target Module (1/per) 520-5283-00 Wheel of Fortune LED & OPTO Transceiver PCB
	Miscellaneous PCBs :	520-5239-01 OPTO T/R Amp.	520-5274-00 Mini-Dot Display 5X7 X5 PCB					
Indiana Jones™	520-5249-00 Backbox	520-5246-00 Backbox	520-5138-00 Backbox	520-5052-00 128 X 32 Dots	515-0173-00 5-Ball Trough	515-0174-00 5-Ball Trough	500-6775-01 2 Switch Pairs (Qty. 4)	520-5251-01 'U' Interruptor PCB Swordsman Assembly
	Miscellaneous PCBs :	520-5287-00 Lamp X20	520-5289-00 LED (X2 Flash) (Qty. 4)					
BATMAN™	520-5249-00 Backbox	520-5246-00 Backbox	520-5138-00 Backbox	520-5052-00 128 X 32 Dots	515-0173-00 4-Ball Trough	515-0174-00 4-Ball Trough		520-5291-00 'U' Interruptor PCB Driver Disc (Joker Motor) Asm. 520-5292-00 'U' Interruptor PCB Idle Disc (Joker Motor) Asm.
	Miscellaneous PCBs :		520-5290-00 Crane OPTO & LED Lamp					

APPENDIX D

Board Type Table

Game Name	Flipper	Sound	Power Supply	Display X-Digit
• Laser War	2-Flipper Board Not Required	<i>initial:</i> 520-5002-00 <i>replaced with:</i> 520-5002-02 <i>520-5002-01 was not used.</i>	520-5000-00	Master: 520-5004-00 plus: 520-5005-00 (Qty. 2): 7 Digit Alpha/Numeric 520-5006-00 (Qty. 2): 7 Digit Numeric 520-5007-00 (Qty. 1): 4 Digit Numeric
• Secret Service • Torpedo Alley	3-Flipper Board Not Required	520-5002-02		520-5014-01 7 Digit Alpha/Numeric Combined
• Time Machine	2-Flipper Board Not Required			
• Playboy 35th Anniversary *	520-5033-00 2-Flipper <i>(*only for 100 games of Playboy 35th Anniv. & ABC Mon. Night Football)</i>			
• ABC Monday Night Football *				
• Robocop				
• Phantom of the Opera				
• Back to the Future				
• The Simpsons		520-5002-03	520-5030-00 16 Digit Alpha/Numeric Combined	

Game Name	Flipper	Sound	Power Supply	Dot Matrix Display	Display Controller	OPTO Transmitter	OPTO Receiver	OPTO Application						
• Checkpoint • Teenage Mutant Ninja Turtles	520-5033-00 2-Flipper	520-5002-03	520-5047-00	520-5042-00 128 X 16										
• Batman • Star Trek 25th Anniv. • Hook		520-5050-01												
• Lethal Weapon 3 • Star Wars • Rocky & Bullwinkle & Friends		520-5050-02	520-5047-01	520-5052-00 128 X 32	520-5055-00									
• Jurassic Park			520-5076-00 3-Flipper						520-5047-02	520-5055-01				
• Last Action Hero	520-5070-00 2-Flipper	520-5050-03												
• Tales from the Crypt • The Who's Tommy	520-5076-00 3-Flipper		520-5077-00											
• WWF Royal Rumble • Guns N' Roses	520-5070 / 5080 -00 4-Flipper (2X2)	520-5047-03			520-5075-00 192 X 64						520-5092-01			
• Maverick	520-5076-00 3-Flipper											520-5050-03	520-5102-00 Single OPTO	520-5103-00 Single OPTO
• Mary Shelley's Frankenstein	520-5077-00		520-5076-00 3-Flipper											
• Baywatch	520-5070 / 5080 -00 4-Flipper (2X2)		520-5126-02									520-5124-00 Single OPTO	520-5125-00 Single OPTO	5-Ball Trough over Up-Kicker
• Batman Forever	520-5076-00 3-Flipper	520-5124-00 Single OPTO		520-5125-00 Single OPTO	4-Ball Trough over Up-Kicke									

Miscellaneous Boards (Lamp Boards & Relay Boards) not listed above can be found in each individual game manual.



APPENDIX E

Flipper Coil (White Star Board System* & S.A.M. System** Only) Table

SAM

Typical Coil Diode 1N4004 unless noted otherwise (Diode Top = above lugs next to windings; Diode Below (Bottom) = under lugs opposite of windings).

STANDARD COILS (TYPICAL APPLICATIONS)			LARGE COILS (FLIPPERS & SPECIAL APPLICATIONS)		
Ga.-Turn	Res (Ω)	SPI Part Number and Comments	Ga.-Turn	Res (Ω)	SPI Part Number and Comments
20-400	1.0 Ω	090-5021- <i>use</i> : -00 Diode Top	21-900	<i>call</i> Ω	090-5020- <i>use</i> : -01 3-Lugs + 1N4004 & 1N5404 Diodes -10 Diode Top <BROWN><RED>
22-500	1.7 Ω	090-5017- <i>use</i> : -00 Diode Top			
22-600	2.2 Ω	090-5017- <i>use</i> : -0B Diode Below // -0T Diode Top	22-750 / 30-2600	2.6 Ω 92.0 Ω	090-5011- <i>use</i> : -00 DUAL WND COIL // 3-Lugs Diode x2
23-700	3.1 Ω	090-5022- <i>use</i> : -0B Diode Below // -0T Diode Top			
23-750	3.4 Ω	090-5019- <i>use</i> : -00 Diode Top	22-900	3.45 Ω	090-5020- <i>use</i> : -20T Diode Top <YELLOW> // -20-ND No Diode
23-800	3.6 Ω	090-5001- <i>use</i> : -0B Diode Below // -0T Diode Top // -NL No Lugs 11" Leads // -ND No Diode	22-1080	4.2 Ω	090-5032- <i>use</i> : -0B D. Below // -0T D. Top <YEL-GRN> -NL No Diode
23-840	4.0 Ω	090-5005- <i>use</i> : -00 Diode Top			
23.5-765	3.6 Ω	090-5037- <i>use</i> : -03 Diode Top	23-620 / 30-2600	2.4 Ω 75.0 Ω	090-5006- <i>use</i> : -00 DUAL WND COIL // 3-Lugs Diode x2
24-900	5.0 Ω	090-5002- <i>use</i> : -02 Diode Top // -10 No Lugs 14" Leads			
24-940	5.5 Ω	090-5036- <i>use</i> : -0B Diode Below // -0T Diode Top <i>use</i> 090-5051-01 No Lugs 11" Leads	23-700 / 30-2600	3.0 Ω 83.5 Ω	090-5013- <i>use</i> : -00 DUAL WOUND COIL // Diode Top
25-1240	9.3 Ω	090-5034- <i>use</i> : -00 Diode Below	23-800 / 30-2600	2.4 Ω 90.5 Ω	090-5012- <i>use</i> : -00 DUAL WOUND COIL // Diode Top
26-1200	10.3 Ω	090-5044- <i>use</i> : -0B Diode Below // -0T Diode Top // -NL No Lugs 11" Leads // -ND No Diode	23-900	4.05 Ω	090-5020- <i>use</i> : -30 Diode Top <GREEN>
27-1300	14.2 Ω	090-5003- <i>use</i> : -0T Diode Top	23-1100	5.1 Ω	090-5030- <i>use</i> : -0T Diode Top <ORANGE> -ND No Diode
27-1400		090-5015- <i>use</i> : -00 Diode Below			
27-1400	14.7 Ω	511-5031-00 <i>Special App.: No Diode / Lugs + Conn.</i>	23-1200	7.1 Ω	090-5008- <i>use</i> : -00 Diode Top <BLACK>
27-1500	16.3 Ω	090-5004- <i>use</i> : -0B Diode Below // -0T Diode Top	23-1500	4.4 Ω	090-5062- <i>use</i> : -00 Diode Top <BLUE>
29-2000	33.6 Ω	090-5016- <i>use</i> : -00 Diode Top	24-1570	9.5 Ω	090-5025- <i>use</i> : -00 Diode Top <BLUE>
LARGE, MEDIUM & MINI COILS (MAGNET APPLICATIONS)			25-1400	<i>call</i> Ω	090-5067- <i>use</i> : -0T Diode Top <RED>
20.5-480	2.9 Ω	090-5064- <i>use</i> : -02 No Lugs or Core; 14" Leads // Large	25-1600	<i>call</i> Ω	090-5068- <i>use</i> : -0T Diode Top <WHITE>
22-650	4.3 Ω	090-5042- <i>use</i> : -00 No Lugs or Core; 6" Leads // Large -01 No Lugs or Core; 12" Leads // Large	25-1800	13.8 Ω	090-5041- <i>use</i> : -0T Diode Top <BLUE-GREEN>
			MINI COILS (RESET / TRIP APPLICATIONS)		
24-780	8.0 Ω	090-5061- <i>use</i> : -00 No Lugs or Core; 6" Lds. // Medium	27-950	<i>call</i> Ω	090-5046- <i>use</i> : -01 Diode Top
29-1000	15.2 Ω	090-5059- <i>use</i> : -00 Lugs + Diode + Magnet Core // Mini	28-1050	11.5 Ω	090-5046- <i>use</i> : -00 Diode Top
31-1500	52.0 Ω	090-5054-00 : Straight Lugs + Diode + Mag Core // Mini 090-5055-00 : 90° Lugs + Diode + Magnet Core // Mini	27-880	<i>call</i> Ω	500-6976-01 No Lugs or Diode + 6" Leads & Conn.
			31-590	<i>call</i> Ω	090-5010- <i>use</i> : -00 Diode Top
Please Note: Ohm values may vary +/- .03 depending on meter calibration.			32-1250	35.0 Ω	515-6916-01 : includes Flap & Screw <YELLOW>
Ordering Note: Coils typically should not come with Coil Sleeves. IF A SLEEVE EXISTS, ensure it is the correct sleeve for the application usage. For the correct Coil Sleeve, refer to the Game Assembly Drawing the coil exists on and order separately.			32-1800	50.2 Ω	090-5031- <i>use</i> : -0B Diode Below // -0T Diode Top (515-6110-00) <i>use</i> 515-# to include mounting & armature brackets
			33-1590	59.0 Ω	515-6916-00 : includes brackets <WHITE>

Flipper Coil (White Star Board System* Only) Table

GAME NAME	Nº of Flippers	FLIPPERS		FLIPPERS no E.O.S. Switch	
		SPI Nº / GAUGE-TURNS / Color		SPI Nº / GAUGE-TURNS / Color	
		LOWER LEFT	LOWER RIGHT	UPPER LEFT	UPPER RIGHT
* Note: For complete Appendix Information for Games Laser War through Batman Forever , see any Service Game Manual between Apollo 13 through Ripley's Believe It or Not! ; or order CD-R, 970-2003-00 (The Simpsons™ Pinball Party , Terminator® 3 and The Lord of the Rings™).					
Apollo 13	2	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
Golden Eye	2	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
Twister	2	090-5020-20T 22-900 -YELLOW-	090-5032-0T 22-1080 -YEL-GRN-	Not Used	Not Used
ID4: Independence Day	3	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	090-5020-30 23-900 -GREEN-
Space Jam †	2	090-5032-0T 22-1080 -YEL-GRN-	090-5020-20T 22-900 -YELLOW-	Not Used	Not Used
The Star Wars Trilogy - Special Edition †	2	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
The Lost World: Jurassic Park †	2	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
The X-Files †	2	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
Starship Troopers †	3	090-5030-0T 23-1100 -ORANGE-	SAME	Not Used	090-5032-0T 22-1080 -YEL-GRN-
Viper Night Drivin' †	2	090-5030-0T 23-1100 -ORANGE-	SAME	Not Used	Not Used
Lost In Space †	2	090-5030-0T 23-1100 -ORANGE-	090-5032-0T 22-1080 -YEL-GRN-	Not Used	Not Used
Godzilla †	2	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
South Park †	2	090-5030-0T 23-1100 -ORANGE-	SAME	Not Used	Not Used

† Coil Part Numbers ending with a "T" signifies the Diode is on the top of the lug (on the coil-winding side); Coil Part Numbers ending with a "B" signifies the Diode is on the bottom of the lugs.

Table continued on the next page.



APPENDIX E

Flipper Coil (White Star Board System* & S.A.M. System** Only) Table

SAM

GAME NAME	Nº of Flippers	FLIPPERS w/E.O.S. Switch		FLIPPERS no E.O.S. Switch	
		SPI Nº / GAUGE-TURNS / Color		SPI Nº / GAUGE-TURNS / Color	
		LOWER LEFT	LOWER RIGHT	UPPER LEFT	UPPER RIGHT
Harley-Davidson® † and 1st through 3rd Editions	2	090-5032-0T 22-1080 -YEL-GRN-	090-5030-0T 23-1100 -ORANGE-	Not Used	Not Used
Striker Xtreme (NFL) †	3	090-5032-0T 22-1080 -YEL-GRN-	090-5030-0T 23-1100 -ORANGE-	090-5030-0T 23-1100 -ORANGE-	Not Used
Sharkey's Shootout †	3	090-5030-0T 23-1100 -ORANGE-	SAME	090-5030-0T 23-1100 -ORANGE-	Not Used
High Roller Casino †	2	090-5020-20T 22-900 -YELLOW-	090-5032-0T 22-1080 -YEL-GRN-	Not Used	Not Used
Austin Powers™ †	2	090-5020-30 23-900 -GREEN-	090-5030-0T 23-1100 -ORANGE-	Not Used	Not Used
MONOPOLY® †	3	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	090-5062-0T 23-1500 -BLUE-
Playboy †	2	090-5030-0T 23-1100 -ORANGE-	SAME	Not Used	Not Used
RollerCoaster Tycoon™ †	4	090-5032-0T 22-1080 -YEL-GRN-	SAME	090-5067-0T 25-1400 -RED-	090-5068-0T 25-1600 -WHITE-
The Simpsons™ Pinball Party †	6** (5 with Flipper Bats)	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	090-5030-0T 23-1100 -ORANGE-
		** The Homer Head Assembly is affixed to an Upr. Rt. Style Flipper (no E.O.S. Switch):		Flippers (Mini-Bats) on 2nd Level Playfield:	
			** 090-5020-20T 22-900 -YELLOW-	090-5041-00T 25-1800 -BLU-GRN-	090-5025-00 24-1570 -BLUE-
Terminator® 3: Rise of the Machines™ †	2	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
The Lord of the Rings™ †	2	090-5020-20T 22-900 -YELLOW-	SAME	Not Used	Not Used
Ripley's Believe It or Not!® †	3	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	090-5067-00T 25-1400 -RED-
Elvis® †	4	090-5020-20T 22-900 -YELLOW-	SAME	090-5020-30 23-900 -GREEN-	SAME
The Sopranos™ †	2	090-5032-0T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
NASCAR® and [NDSE] †	2	090-5030-0T 23-1100 -ORANGE-	SAME	Not Used	Not Used
Grand Prix †	2	090-5030-0T 23-1100 -ORANGE-	SAME	Not Used	Not Used

† Coil Part Numbers ending with a "T" signifies the Diode is on the top of the lug (on the coil-winding side); Coil Part Numbers ending with a "B" signifies the Diode is on the bottom of the lugs.

** S.A.M. System Games DO NOT REQUIRE DIODES. If you use a coil from your stock which has a diode, remove it ONLY FOR S.A.M. System Games.

World Poker Tour™ (WPT)**	4	090-5032-ND 22-1080 [NO DIODE]	SAME	090-5030-ND 23-1100 [NO DIODE]	SAME
©Disney's Pirates of the Caribbean**	2	090-5030-ND 23-1100 [NO DIODE]	SAME	Not Used	Not Used
Family Guy™ ** and Shrek™ **	3 Norm.	090-5030-ND 23-1100 [NO DIODE]	SAME	090-5062-ND 23-1500 [NO DIODE]	Not Used
	2 Mini	090-5046-01-ND 27-950 [NO DIODE]	SAME		
Spider-Man™ ** and Black Spider-Man™ **	3	090-5032-ND 22-1080 [NO DIODE]	SAME	Not Used	090-5032-ND 22-1080 [NO DIODE]
Wheel of Fortune™ **	2	090-5032-ND 22-1080 [NO DIODE]	SAME	Not Used	Not Used
Indiana Jones™ **	2	090-5032-ND 22-1080 [NO DIODE]	SAME	Not Used	Not Used
BATMAN™ **	2	090-5032-ND 22-1080 [NO DIODE]	SAME	Not Used	Not Used

APPENDIX E

Generic Coil Cross-Reference Guide † ‡

Flipper Coil Table ‡ ††

GAME NAME	Nº of Flippers	FLIPPERS w/E.O.S. Switch		FLIPPERS no E.O.S. Switch	
		SPI Nº / GAUGE-TURNS / Color		SPI Nº / GAUGE-TURNS / Color	
		LOWER LEFT	LOWER RIGHT	UPPER LEFT	UPPER RIGHT
Laser War ‡	2	090-5011-00 22-750 / 30-2600	SAME	Not Used	Not Used
Secret Service ‡	3	090-5006-00 23-620 / 30-2600	SAME	Not Used	090-5006-00 23-620 / 30-2600
Torpedo Alley ‡	3	090-5011-00 22-750 / 30-2600	090-5013-00 23-700 / 30-2600	Not Used	090-5012-00 23-800 / 30-2600
Time Machine ‡	2	090-5011-00 22-750 / 30-2600	SAME	Not Used	Not Used
‡ These coils are dual-wound.					
Playboy 35th Anniversary ††	2	090-5020-02 22-900 -YEL-YEL-	SAME	Not Used	Not Used
ABC Monday Night Football ††	2	090-5020-02 22-900 -YEL-YEL-	SAME	Not Used	Not Used
†† A very small % of these games used a 090-5020-20 coil which used a proto-type Solid State Flipper System. The two types of coils both are 22-900 coils; the only difference is the addition of the 1N5404 Diode on the (-02) coils which was used in the Deger Design.					
Robocop	2	090-5020-20 22-900 -YEL-YEL-	SAME	Not Used	Not Used
Phantom of the Opera	2	090-5020-20 22-900 -YEL-YEL-	SAME	Not Used	Not Used
Back to the Future	2	090-5020-20 22-900 -YEL-YEL-	SAME	Not Used	Not Used
The Simpsons	2	090-5020-20 22-900 -YEL-YEL-	SAME	Not Used	Not Used
Checkpoint	2	090-5020-20 22-900 -YEL-YEL-	SAME	Not Used	Not Used
Teenage Mutant Ninja Turtles	2	090-5020-30 23-900 -GRN-GRN-	SAME	Not Used	Not Used
Batman	2	090-5020-30 23-900 -GRN-GRN-	SAME	Not Used	Not Used
Star Trek 25th Anniversary	2	090-5020-30 23-900 -GRN-GRN-	SAME	Not Used	Not Used
Hook	2	090-5030-00 23-1100 -ORG-ORG-	090-5020-30 23-900 -GRN-GRN-	Not Used	Not Used
Lethal Weapon 3	2	090-5030-00 23-1100 -ORG-ORG-	SAME	Not Used	Not Used
Star Wars	2	090-5032-00 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
Rocky & Bullwinkle & Friends	2	090-5020-30 23-900 -GRN-GRN-	SAME	Not Used	Not Used
Jurassic Park	3	090-5020-30 23-900 -GRN-GRN-	SAME	Not Used	090-5030-00 23-1100 -ORG-ORG-

Table continued on the next page.



APPENDIX E

Flipper Coil Table †

GAME NAME	Nº of Flippers	FLIPPERS w/ E.O.S. Switch		FLIPPERS no E.O.S. Switch	
		SPI Nº / GAUGE-TURNS / Color		SPI Nº / GAUGE-TURNS / Color	
		LOWER LEFT	LOWER RIGHT	UPPER LEFT	UPPER RIGHT
Last Action Hero	2	090-5020-30 23-900 -GRN-GRN-	SAME	Not Used	Not Used
Tales from the Crypt	3	090-5032-00 22-1080 -YEL-GRN-	SAME	Not Used	090-5041-00 25-1800 -BLU-GRN-
The Who's Tommy	3	090-5020-30 23-900 -GRN-GRN-	SAME	090-5041-00 25-1800 -BLU-GRN-	Not Used
WWF Royal Rumble	4	090-5032-00 22-1080 -YEL-GRN-	SAME	090-5041-00 25-1800 -BLU-GRN-	SAME
Guns N' Roses	3	090-5032-00 22-1080 -YEL-GRN-	SAME	090-5030-00 23-1100 -ORG-ORG-	Not Used
Maverick	3	090-5032-00 22-1080 -YEL-GRN-	SAME	Not Used	090-5032-00 22-1080 -YEL-GRN-
Mary Shelley's Frankenstein	3	090-5030-00 23-1100 -ORG-ORG-	SAME	Not Used	090-5030-00 23-1100 -ORG-ORG-
Baywatch	4	090-5030-00 23-1100 -ORG-ORG-	090-5020-30 23-900 -GRN-GRN-	090-5025-00 24-1570 -See Note-	090-5030-00 23-1100 -ORG-ORG-
Batman Forever	3	090-5032-00 22-1080 -YEL-GRN-	090-5020-20 22-900 -YEL-YEL-	Not Used	090-5020-30 23-900 -GRN-GRN-
Apollo 13	2	090-5032-00 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
Golden Eye	2	090-5032-00 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
Twister	2	090-5020-20 22-900 -YEL-YEL-	090-5032-00 22-1080 -YEL-GRN-	Not Used	Not Used
ID4: Independence Day	3	090-5032-00 22-1080 -YEL-GRN-	SAME	Not Used	090-5020-30 23-900 -GRN-GRN-
Space Jam †	2	090-5032-00T 22-1080 -YEL-GRN-	090-5020-20T 22-900 -YEL-YEL-	Not Used	Not Used
The Star Wars Trilogy - Special Edition †	2	090-5032-00T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
The Lost World: Jurassic Park †	2	090-5032-00T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
The X-Files †	2	090-5032-00T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
Starship Troopers †	3	090-5030-00T 23-1100 -ORG-ORG-	SAME	Not Used	090-5032-00T 22-1080 -YEL-GRN-
Viper Night Drivin' †	2	090-5030-00T 23-1100 -ORG-ORG-	SAME	Not Used	Not Used
Lost In Space †	2	090-5030-00T 23-1100 -ORG-ORG-	090-5032-00T 22-1080 -YEL-GRN-	Not Used	Not Used
Godzilla †	2	090-5032-00T 22-1080 -YEL-GRN-	SAME	Not Used	Not Used
South Park †	2	090-5030-00T 23-1100 -ORG-ORG-	SAME	Not Used	Not Used
Harley-Davidson® † and Harley-Davidson® 2nd Ed. †	2	090-5032-00T 22-1080 -YEL-GRN-	090-5030-00T 23-1100 -ORG-ORG-	Not Used	Not Used
Striker Xtreme (NFL) †	3	090-5032-00T 22-1080 -YEL-GRN-	090-5030-00T 23-1100 -ORG-ORG-	090-5030-00T 23-1100 -ORG-ORG-	Not Used
Sharkey's Shootout †	3	090-5030-00T 23-1100 -ORG-ORG-	SAME	090-5030-00T 23-1100 -ORG-ORG-	Not Used
High Roller Casino †	2	090-5020-20T 22-900 -YEL-YEL-	090-5032-00T 23-1080 -YEL-GRN-	Not Used	Not Used
Austin Powers™ †	2	090-5020-30 23-900 -GRN-GRN-	090-5030-00T 23-1100 -ORG-ORG-	Not Used	Not Used
MONOPOLY® †	3	090-5032-00T 22-1080 -YEL-GRN-	SAME	Not Used	090-5062-00T 23-1500 -BLU-BLU-
Playboy †	2	090-5030-00T 23-1100 -ORG-ORG-	SAME	Not Used	Not Used
RollerCoaster Tycoon™ †	4	090-5032-00T 22-1080 -YEL-GRN-	SAME	090-5067-00T 25-1400 -RED-RED-	090-5068-00T 25-1600 -WHT-WHT
The Simpsons™ Pinball Party †	6* (5 with Flipper Bats)	090-5032-00T 22-1080 -YEL-GRN-	SAME	Not Used	090-5030-00T 23-1100 -ORG-ORG-
		* The Homer Head Assembly is affixed to an Upr. Rt. Style Flipper (no E.O.S. Switch):		Flippers (Mini-Bats) on 2nd Level Playfield:	
Terminator® 3: Rise of the Machines™ †	2	090-5032-00T 22-1080 -YEL-GRN-	090-5020-20T 22-900 -YEL-YEL-	090-5041-00T 25-1800 -BLU-GRN-	090-5025-00T 24-1570 -See Note-
The Lord of the Rings™ †	2	090-5020-20T 22-900 -YEL-YEL-	SAME	Not Used	Not Used
Ripley's Believe It or Not!® †	3	090-5032-00T 22-1080 -YEL-GRN-	SAME	Not Used	090-5067-00T 25-1400 -RED-RED-

† Coil Part N°s ending with a "T" signifies the Diode is on the top of the lug (on the coil-winding side); Coil Part N°s ending with a "B" signifies the Diode is on the bottom of the lugs.



APPENDIX F

Motor Specification (White Star Board System* Only) Table



Game Name	Function	Specifications	Part Number
Apollo 13	Rocket Up/Down Movement	Bowman Motor 24VAC 60Hz 3W 6 RPM CCW	515-6383-00 <i>incl. Connector</i>
	Moon Unit Rotational Orbit	Multi Products Motor 24VAC 50/60Hz 3W 6 RPM CCW	515-6487-00 <i>incl. Connector</i>
	Shaker	Johnson Motor (Vibrator) 10.5VDC 10 AMP 2950 RPM CW	041-5029-00 <i>MOTOR ONLY</i>
Golden Eye	Satellite Left/Right Movement	Bowman Motor 24VAC 60Hz 3W 6 RPM CW	515-6528-00 <i>incl. Connector</i>
Twister	Spinning Disc with Magnet	Multi Products Motor 24VAC (041-5026-00) 50/60Hz 3W 325 RPM CCW	515-6347-00 <i>incl. Connector</i>
	Backbox Fan (Tornado Wind)	Multi Products Motor 24VAC (041-5052-00) 50/60Hz 3W 3600 RPM CW	515-6531-00 <i>incl. Connector</i>
ID4: Independence Day	Alien Head Open/Close Movement	Servo Motor (94322)	041-5045-00 <i>MOTOR ONLY</i>
SPACE JAM (NO MOTOR USED)			
The Star Wars Trilogy - S.E.	X-Wing Left/Right Movement	Bowman Motor 24VAC (041-5058-00) 60Hz 3W 10 RPM CCW	515-6383-01 <i>incl. Connector</i>
The Lost World: Jurassic Park	Snagger & Center Link Lift Up/Down Movement	Multi Products Motor 20VDC (041-5059-03) 9 RPM Non-Directional	515-6715-03 <i>incl. Connector</i>
	Shaker	Johnson Motor (Vibrator) 10.5VDC 10 AMP 2950 RPM CW	041-5029-00 <i>MOTOR ONLY</i>
The X-Files	X-File Cabinet Lift Up/Down Movement	Multi Products Motor 20VDC 9 RPM CCW	041-5057-00 <i>MOTOR ONLY</i>
Starship Troopers	Warrior Bug Forward/Reverse Movement	Haydon Switch & Instrument, Inc. Stepper Motor 12VDC 4.6W (041-5062-00), Series 36000: 1.4"ø (Non-Captive Shaft not included) HSI #36864-12 (Unipolar) Travel per Step: .004 Step Angle: 15°	515-6794-00 <i>incl. Connector</i> Requires 7" Shaft: 530-5503-00
VIPER NIGHT DRIVIN' (NO MOTOR USED)			
Lost In Space	Spinning Disc with Magnet	Multi Products Motor 24VAC (041-5046-00) 50/60Hz 3W 325 RPM CCW	515-6347-00 <i>incl. Connector</i>
Godzilla	Shaker ‡	Multi #3811 0630 Motor (Vibrator) 12VDC 3100 RPM CW (w/DRL PTS) ‡	041-5029-01 <i>MOTOR ONLY</i>
SOUTH PARK (NO MOTOR USED)			
Harley-Davidson® 1st through 3rd Editions	Shaker ‡	Multi #3811 0630 Motor (Vibrator) 12VDC 3100 RPM CW (w/DRL PTS) ‡	041-5029-01 <i>MOTOR ONLY</i>
	Motorcycle Lift Up/Down Movement	Autotrol 24VAC (041-5072-02) 20 RPM CCW	515-7025-00 <i>incl. Connector</i>
Striker Xtreme (NFL)	Goalie (Linebacker) Left to Right Movement	Multi #3590 12VDC (041-5075-00) 60 RPM	515-7071-00 <i>incl. Connector</i>
Sharkey's Shootout	Mystery Ball Rotating Movement	Hanksraft Motor Model-E 24VAC (041-5076-00) 50/60Hz 3W 20 RPM CW	515-7095-00 <i>incl. Connector</i>
High Roller Casino	Roulette Wheel Rotating Movement	Multi Products Motor 20VDC (041-5078-00) 17 RPM CCW	515-7153-00 <i>incl. Connector</i>
	Up/Dn. Ramp in Slot Mach. Lift Up/Down Movement	Haydon Switch & Instrument, Inc. Stepper Motor 12VDC 4.6W (041-5062-00), Series 36000: 1.4"ø (Non-Captive Shaft not included) HSI #36864-12 (Unipolar) Travel per Step: .004 Step Angle: 15°	515-6794-00 <i>incl. Connector</i> Requires Shaft 4¼": 530-5503-01
Austin Powers™	Time Machine Rotating Movement	Multi Products Motor 24VAC (041-5079-00) 50/60Hz 20RPM CCW	515-7141-00 <i>incl. Connector</i>
	Laser Beam Left to Right Directional	Autotrol Motor 24VAC (041-5081-00) 50/60Hz 4W 10RPM Bi-Directional	515-7171-00 <i>incl. Connector</i>
	Dr. Evil Target Lift Up/Down Movement	Hanksraft Motor Model-E 24VAC (041-5030-00) 50/60Hz 6RPM CCW	515-5900-00 <i>incl. Connector</i>
Monopoly®	Mini-Flipper (Waterworks) Rotating Movement	Multi Prod. Motor & Gear Box #7000 EX00159A 20VDC 50/60Hz 85RPM CC/CCW	041-5083-00 <i>MOTOR ONLY</i>
Playboy	Triangular Billboard Rotating Movement	Autotrol Motor (BD511 150-1387) 24VAC 50/60Hz 12RPM Bi-Directional	041-5086-02 <i>MOTOR ONLY</i>
	Centerfold Mechanism Open/Close Movement	Multi Products (3680) Motor 12v DC 10/12 RPM CC/CCW	041-5075-04 <i>MOTOR ONLY</i>
	Tease Drop Screen Lift Up/Down Movement	Haydon Switch & Instrument, Inc. Stepper Motor 12VDC 4.6W (041-5062-00), Series 36000: 1.4"ø (Non-Captive Shaft not included) HSI #36864-12 (Unipolar) Travel per Step: .004 Step Angle: 15°	515-6794-00 <i>incl. Connector</i> Requires 7" Shaft: 530-5503-00

‡ Please Note: "-01" Shaker Motor is **Not Compatible** with old Shaker Motor 041-5029-00 (Shaker Motor Assy. 515-5893-00). THIS NEW MOTOR CAN ONLY BE USED IN NEW SHAKER MOTOR ASSY. 515-5893-01.

Table continued on the next page.





APPENDIX F

Motor Specification (White Star Board System* & S.A.M. System** Only) Table

SAM

Game Name	Function	Specifications	Part Number
ROLLERCOASTER TYCOON™ (NO MOTOR USED)			
THE SIMPSONS™ PINBALL PARTY (NO MOTOR USED)			
Terminator® 3: Rise of the Machines™	Backbox Ball Shooter Up/Down Movement	Multi Products Motor 24VAC (041-5079-01) 21 RPM CW	515-7317-00 <i>incl. Connector</i>
The Lord of the Rings™	Balrog (Motor & Gate) Open/Close Movement	Multi Prod. Motor 20VDC Series 600B (or equiv.) 50/60Hz 10 RPM Bi-Directional	041-5088-01 MOTOR ONLY
RIPLEY'S BELIEVE IT OR NOT!® (NO MOTOR USED)			
Elvis®	Elvis™ Front/Back Movement	Haydon Switch & Instrument, Inc. Stepper Motor 12VDC 10W (041-5089-00), (Non-Captive Shaft not included) HSI #46868-12-002	500-6809-00 <i>incl. Connector</i> Requires 7.25" Shaft: 530-5658-00
	▶▶▶ OPTIONAL ◀◀◀ Shaker Motor Kit 502-5027-00	Multi #3811 0630 Motor (Vibrator) 12VDC (041-5029-01) 3100 RPM (w/DRL PTS)	515-5893-01 <i>incl. Connector</i>
The Sopranos™	Bada Bing! Girls x2 Rotating Posts Movement	Autotrol Synchronous Motor 24VAC 4W 50/60Hz 45.7/54.9 RPM Bi-Directional	041-5092-00 <i>w/1" Shaft + 12" Leads</i>
NASCAR® and [NDSE]	Back Panel Rotating (Car) Windmill (Skill Ball Enter)	Multi Products Motor & Gear Box 20VDC Model #8000 (EX-04-073) 10 RPM	041-5093-00 MOTOR ONLY
Grand Prix	Back Panel Rotating (Car) Windmill (Skill Ball Enter)	Multi Products Motor & Gear Box 20VDC Model #8000 (EX-04-073) 10 RPM	041-5093-00 MOTOR ONLY
World Poker Tour™ (WPT) (NO MOTOR USED)			
The Simpsons™ Kooky Carnival	Bart on Skateboard Left/Right Movement	Multi Products Motor with Crank 24VAC (041-5095-01) 50/60Hz 3W 14 RPM	500-6947-01 <i>incl. Connector</i>
	Left & Right Ramps Up/Down Movement	Multi Products Motor 24VAC (041-5048-01) 50/60Hz 3W 15 RPM CCW (Qty. 2 in game)	515-7558-00 <i>incl. Connector</i>
	Shaker (details in SKC Manual, Page 24)	Multi #3811 0630 Motor (Vibrator) 12VDC 3100 RPM (w/DRL PTS)	041-5029-01 MOTOR ONLY
©Disney's Pirates of the Caribbean	Spinning Disk	Multi #3811R 0630 Motor (Vibrator) 12VDC (041-5029-04) 3100 RPM (w/DRL PTS) -04 is RoHS compliant; can substitute with -01 domestic	511-5024-04 <i>incl. Connector</i>
	Pirate Ship Sinking/Raising Movement	Multi Products Motor & Gear Box 24VDC Reversible Model #7000D-DCM 12 RPM 35MM (.86" Shaft)	041-5101-00 MOTOR ONLY
Family Guy™ and Shrek™	Stewie Figurine Left & Right Movement	Stepper Motor NPM PF35T-48D4STD 5V RVB (041-5102-00 Reference Only)	511-5043-00 <i>incl. Connector</i>
Spider-Man™ and Black Spider-Man™	Doc Ock, Sandman & 3-Bank Up/Down Movement	Sync. Motor 24VAC 50/60Hz 3W 12 RPM CW (041-5103-00 Reference Only)	511-5063-00 <i>incl. Connector</i>
	▶▶▶ OPTIONAL ◀◀◀ Shaker Motor Kit 502-5027-00	Multi #3811R 0630 Motor (Vibrator) 12VDC (041-5029-04) 3100 RPM (w/DRL PTS) -04 is RoHS compliant; can substitute with -01 domestic	515-5893-01 <i>incl. Connector</i>
Wheel of Fortune™	Wheel (LED & OPTO) Spinning Movement	Stepper Motor Lin. Eng. 4118S-70-RO (041-5105-00 Reference Only)	511-5072-00 <i>incl. Connector</i>
Indiana Jones™	Ark (Pinball Elevator) Up/Down Movement	Multi Products Motor & Gear Box 24VDC Reversible Model #7000D-DCM 12 RPM 35MM (.63" Shaft)	041-5107-00 MOTOR ONLY
	Temple Newton Captive Ball Up/Down Movement	Sync. Motor 24VAC 50/60Hz 3W 12 RPM CW (041-5103-00 Reference Only)	511-5063-00 <i>incl. Connector</i>
	Swordsman Gate Open/Close Movement	Sync. Motor 24VAC 50/60Hz 3W 12 RPM CW (041-5103-02 Ref. Only) Modified Motor Shaft	511-5063-02 <i>incl. Connector</i>
	▶▶▶ OPTIONAL ◀◀◀ Shaker Motor Kit 502-5027-00	Multi #3811R 0630 Motor (Vibrator) 12VDC (041-5029-04) 3100 RPM (w/DRL PTS) -04 is RoHS compliant; can substitute with -01 domestic	515-5893-01 <i>incl. Connector</i>
BATMAN™	Crane Motor (Type 1) Forward & Back. Movement	Multi Products Motor & Gear Box 24VDC Reversible Model #7000D-DCM 12 RPM 35MM (.63" Shaft)	041-5107-01 MOTOR ONLY
	Crane Motor (Type 2) Forward & Back. Movement	Multi Products Motor & Gear Box 24VDC Reversible Model #7000D-DCM 12 RPM 35MM (.63" Shaft) KEYED (includes Key #404 (535-0256-00))	041-5107-02 MOTOR ONLY
	Reveal (Joker) Open/Close Movement	Multi Products & Gear Motor 24VDC Model #7000 12 RPM with 26mm Diam. ø	041-5108-00 MOTOR ONLY
	▶▶▶ OPTIONAL ◀◀◀ Shaker Motor Kit 502-5027-00	Multi #3811R 0630 Motor (Vibrator) 12VDC (041-5029-04) 3100 RPM (w/DRL PTS) -04 is RoHS compliant; can substitute with -01 domestic	515-5893-01 <i>incl. Connector</i>

APPENDIX F

Motor Specification Table

The following table only list games that used motors. Part Numbers starting with "515-" will include the Wiring Harness & Connector.

Game Name	Function	Specifications	Part Nº
ABC Monday Night Football	Goal Post Up/Down Movement	Motor 24v A.C. 60 RPM CW	515-5222-00
Phantom of the Opera	Organ Up/Down Movement	Bowman Motor 24v 60Hz 3W 11 RPM CCW	515-5256-00
Checkpoint	Mag Wheel (in Backbox)	Motor D.C. (KEN)	041-5005-00
	Shaker	Johnson Motor (Vibrator)	041-5002-00
Teenage Mutant Ninja Turtles	Spinning Pizza Ball Deflector	Gear Motor 24v A.C. 325 RPM CW	515-5397-00
Batman	Bar Target Up/Down Movement	Bowman Motor 24v 60Hz 3W 11 RPM CCW	515-5256-00
Star Trek 25th Anniversary	Swinging Target	Bowman Motor 24v 22½ RPM	515-5534-00
	Transporter F/X	Gear Motor 24v A.C. 3½ RPM	500-5421-00
	Cooling Fan (for Transporter F/X)	4½" Motor 12v	041-5014-00
Lethal Weapon 3	Spinning Light	Motor 2½ v A.C. 4000 RPM CCW	041-5017-00
Star Wars	Bar Target Up/Down Movement	Bowman Motor 24v 60hz 3W 11 RPM CCW	515-5256-00
	R2D2 Robot Left/Right Movement	Bowman Motor 24v A.C. 22½ RPM CW	515-5571-00
	Death Star Rotation	Bowman "G" Motor 24v A.C. 60Hz 6 RPM CW	515-5570-00
Rocky & Bullwinkle & Friends	Nell Log "Cutting Blade" Forward/Back Movement	Autotrol Model E Motor 24v 60Hz 4W 3 RPM CCW	041-5023-00
Jurassic Park	T-Rex Left/Right Movement	Multi Motor 5v D.C.	041-5025-00
	T-Rex Up/Down Movement	Bowman Motor 24v 11 RPM CW	041-5026-00
	Shaker	Johnson Motor (Vibrator)	041-5002-00
Last Action Hero	Crane Left/Right Movement	Multi Products Motor 12v D.C. #3312 OSC	041-5027-00
	Shaker	Johnson Motor (Vibrator) 10.5v D.C. 10 AMP 2950 RPM CW	041-5029-00
Tales from the Crypt	Tombstone Up/Down Movement	Bowman Motor 24v A.C. 6 RPM CCW	515-5900-00
	Shaker	Johnson Motor (Vibrator) 10.5v D.C. 10 AMP 2950 RPM CW	041-5029-00
The Who's Tommy	Mirror Up/Down Movement	Bowman Motor 24v A.C. 6 RPM CCW	515-5900-00
	Flipper Blinders	Servo Motor (94102)	041-5032-00
	Spinning Airplane Propellers	Motor D.C.	041-5033-00
WWF Royal Rumble	Shaker	Johnson Motor (Vibrator) 10.5v D.C. 10 AMP 2950 RPM CW	041-5029-00
Maverick, The Movie	Turning Paddle Wheel	Motor 24v A.C. 10 RPM	041-5036-00
Mary Shelley's Frankenstein	Creature Head Left/Right Movement	Servo Motor (94102)	041-5032-00
Batman Forever	Cannon Left/Right Movement	Bowman Motor 24v A.C. 60Hz 3W 6 RPM CCW	515-6383-00

APPENDIX G

Part Number Prefix Classification Codes

I. Electrical Source, Energy & Signal Converters

- 010- Transformers
- 031- Speakers
- 090- Solenoids (Coils)
- 150- Filters, Outlets, Varistors, Thermistors
- 200- Fuses

II. Conductors, Connectors & Insulators

- 034- Line Cords
- 036- Cable Assemblies & Wiring Harnesses
- 041- Motors
- 045- Connectors (All Types)
- 055- Lugs (M/F), Pins (M/F), Discs, Ring Terminals, Terminal Strips, etc.
- 060- Polarizing Keys and Conn. Covers
- 077- Lamp Sockets

III. Circuits & Circuit Elements

- 100- ICs
- 110- Transistors
- 112- Diodes (All Types including LEDs & Modules)
- 121- Resistors
- 123- Resistors (Variable & Adjustable)
- 124- Regulators & Bridge Rectifiers
- 125- Capacitors (Radial Lytics & Ferrites)
- 126- Piezo Crystal
- 127- Heatsinks
- 130- Capacitors (Tectates & Ceramics)
- 140- Oscillators (Clocks/Crystals)
- 165- Light Bulbs
- 180- Switches
- 181- Switch Membranes (Pads) & Piezo Sensors
- 190- Relays
- 960- EPROM (*Raw Part*)
- 965- EPROM (*Programmed Part*)

IV. Bolts, Screws, Nuts, Washers & Nails

- 231- Bolts
- 232- Screws (Pan Head)
- 234- Screws (HWH)
- 237- Screws (Misc.)
- 240- Nuts (Misc.)
- 242- Washers (Flat, Round)
- 244- Washers (Split Lock)
- 245- Nyloners
- 246- Washers (Lockers, External Tooth)
- 281- Nails

V. Mechanical Components

- 249- Rivets
- 251- Pins (Dowel), Finishing Nails, Hairpins, Spring Pins and Clevis Pins
- 254- Stand-Offs, Spacers and Shims
- 260- Steel Ball (All Types Steel, Glowing, Delrin, etc.)
- 265- Springs (Extension)
- 266- Springs (Compression)
- 267- Springs (Torsion)
- 269- Springs (Washers - Belleville, Wave)
- 270- Retaining Rings
- 280- Grommets, Bushings and Nyloners
- 283- Bearings

VI. Handles, Locks, Catches, Latches, Keys

- 355- Handles, Locks, Catches, Latches and Keys

VII. Fabricated Parts

- 390- Hinges
- 501- Coin Doors
- 515- Sub-Assemblies
- 520- Printed Circuit Boards (PCBs)
- 522- Display Glass
- 525- Wood Parts
- 530- Screw Machined Parts
- 535- Fabricated Parts
- 545- Molded (Extruded) Plastic and Rubber Parts (Rings, Sleeves, etc.)
- 550- Molded (Inserts)

VIII. In-House Assemblies

- 500- End Product (Systems and Models)
- 502- Kits (Created In-House)
- 505- Cabinets (complete)
- 510- Riveted Sub-Assemblies (In-House)
- 511- Sub-Assemblies (In-House)
- 515- Sub-Assemblies*

*2 or more 515-'s but still a sub-assembly.

IX. Bulk Materials

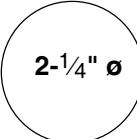
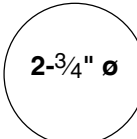
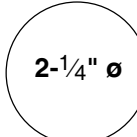
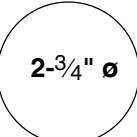
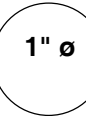
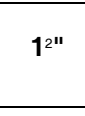
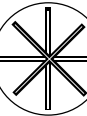
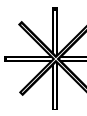
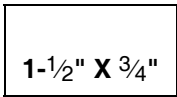
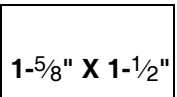
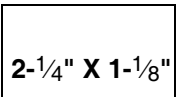
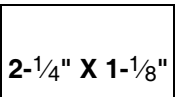
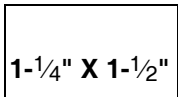
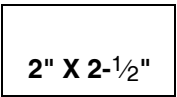
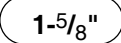
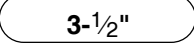
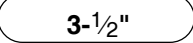
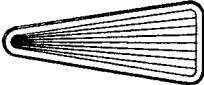
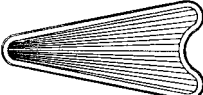
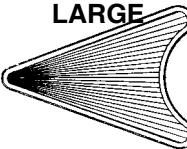
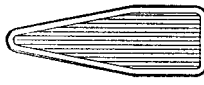
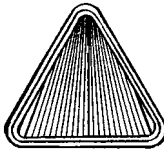
- 600- Braided Wire & Ground Straps
- 601- Stranded Wire
- 602- Ribbon Cable
- 604- Telephone Line Cord
- 605- Sleeving (Shrink Tubing)
- 625- Velcro (non-adhesive)
- 626- Foam Rubber, Foam Pads, Rubber Bumpers (Blue Pads), Tape (All Types) Velcro (adhesive) and String / Rope

X. Miscellaneous

- 000- Tools (*see also 777-*) and Supplies
- 040- Clamps, Ties & Clips
- 042- Pulleys
- 091- Coin Mechs
- 205- Fuse Holders
- 631- Staples
- 660- Glass (Playfield, Backglass, etc.)
- 675- Cleaners
- 705- Packing & Shipping Items
- 755- Instruction, Coin Cards, Ins. Sheets
- 756- Information Sheets, Service Bulletins, Instruction Sheets in Kits and Templates
- 777- Tools (Wrenches and Drivers)
- 780- Manuals
- 802- Decal Kits (comprised of 820's)
- 820- Decals, Mylar and Labels (Sheets/Sets)
- 803- Plastic Kits (comprised of 830's)
- 830- Plastic Pieces (Butyrate Sheets/Sets)
- 880- Toys, Models, Figurines, etc.
- 900- Game Posters

APPENDIX H

Playfield Inserts (Plastic Light Covers)

Patterns: STARBURST  STIPPLE 	STARBURST CIRCULAR  550-5000-XX	STARBURST CIRCULAR  550-5001-XX	STARBURST CIRCULAR  550-5002-XX	STARBURST CIRCULAR  550-5003-XX	STARBURST CIRCULAR  550-5004-XX
STARBURST CIRCULAR  550-5005-XX	STARBURST CIRCULAR  550-5006-XX	PLAIN CIRCULAR  550-5007-XX	PLAIN CIRCULAR  550-5008-XX	PLAIN CIRCULAR  550-5009-XX	PLAIN CIRCULAR  550-5010-XX
PLAIN CIRCULAR  550-5011-XX	PLAIN CIRCULAR  550-5012-XX	STIPPLE CIRCULAR  550-5048-XX	STIPPLE 1" SQUARE  550-5019-XX	ROLLOVER BUTTON BASE  550-5026-XX	WHITE STAR (only in white)  545-5015-00
STIPPLE RECTANGULAR  550-5018-XX	STIPPLE RECTANGULAR  550-5051-XX	STARBURST RECTANGULAR  550-5044-XX	PLAIN RECTANGULAR  550-5049-XX	PLAIN RECTANGULAR  550-5050-XX	PLAIN RECTANGULAR  550-5063-XX
STARBURST MINI SHIELD  550-5024-XX	STARBURST LARGE SHIELD  550-5025-XX	MINI HOT DOG  550-5020-XX	BEVEL HOT DOG  550-5021-XX	PLAIN HOT DOG  550-5022-XX	BANANA  550-5023-XX
STARBURST ARROW-SMALL  550-5013-XX	STARBURST ARROW-LARGE  550-5070-XX	STARBURST ARROW-HEAD SMALL  550-5014-XX	STARBURST ARROW-HEAD LARGE  550-5015-XX	STARBURST BULLET  550-5016-XX	STARBURST TRIANGLE  550-5017-XX

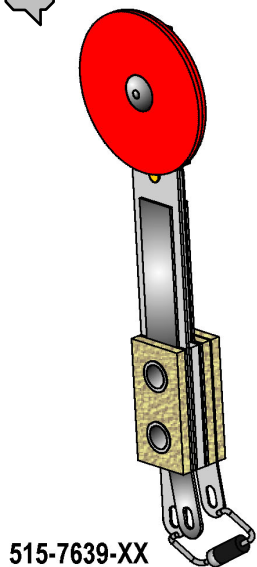
Note: The shapes and sizes shown above are not to scale. Some shapes may no longer be available in every color.

Instructions: Parts which may come in various colors (i.e. targets, some posts, playfield inserts, etc.) end in a 2-digit number which correspond to the color of that part. The "-XX" in part number which may come in various colors should be replaced with the desired 2-Digit number corresponding to the color desired below. *Not all colors may be available.*

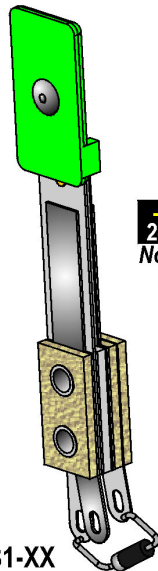
PLASTIC PART COLOR CHART											
Nº	Color	Nº	Color	Nº	Color	Nº	Color	Nº	Color	Nº	Color
-00	Black or Solid Clear	-03	Amber	-06	Yellow	-09	Purple	-12	Fluor. Blue	-15	Luminescent
-01	Clear	-04	Green	-07	Orange	-10	Fluor. Orange	-13	Teal Green	-16	Gold
-02	Red	-05	Blue	-08	White	-11	Fluor. Green	-14	Gray	-17	Trans. Brown

APPENDIX I

Anti-Loft Stand-Up Targets



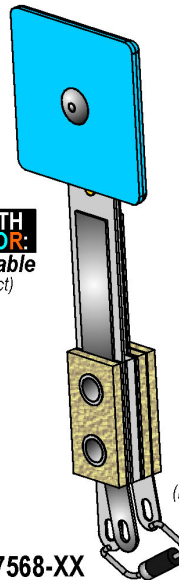
515-7639-XX
1" Ø ROUND
ANTI-LOFT STAND-UP
SWITCH & TARGET
RIVETED ASSEMBLY*



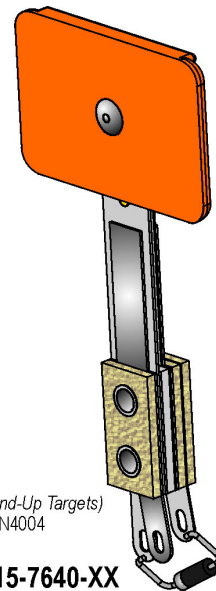
515-7581-XX
1" X 1/2" NARROW RECTANGLE
ANTI-LOFT STAND-UP
SWITCH & TARGET
RIVETED ASSEMBLY*

Ordering Note:
-XX REPLACE WITH
2-DIGIT FOR COLOR:
Not all colors available
(colors shown not exact)

-02	Red
-03	Amber
-04	Green
-05	Blue
-06	Yellow
-07	Orange
-08	White



515-7568-XX
1" X 1" SQUARE
ANTI-LOFT STAND-UP
SWITCH & TARGET
RIVETED ASSEMBLY*



515-7640-XX
1" X 1-1/2" WIDE RECTANGLE
ANTI-LOFT STAND-UP
SWITCH & TARGET
RIVETED ASSEMBLY*

(Required on all Stand-Up Targets)
▼ Switch Diode, 1N4004
112-5003-00

*Some targets may require the lugs position be changed to the left or to the right, depending on the application; these targets will have a different part number and are called out in the game manual they are used in (see Section 4, Chapter 1, Parts Identification & Location, Playfield... -Switches.) Review the game manual for the game desired for the original target used or application.

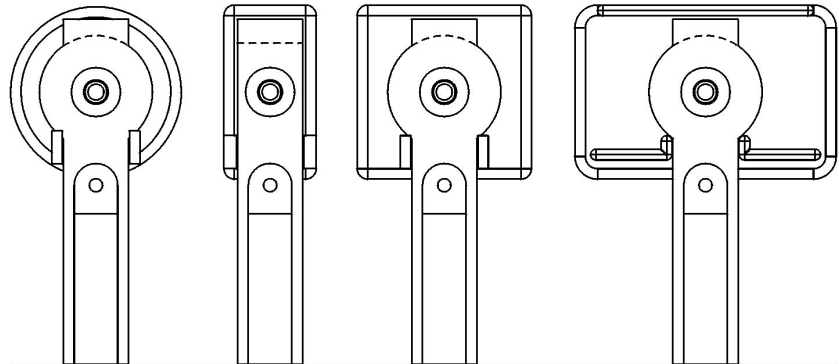
**For Anti-Loft
Application use**
Large Foam Pad,
5/8" X 7/16" X 3/16" Thick
626-5078-00



**For > Light < Anti-Loft
Application use**
Small Foam Pad,
7/16" X 7/16" X 1/8" Thick
626-5029-00



Anti-Loft Switch
Back Plate ▼
535-9823-01



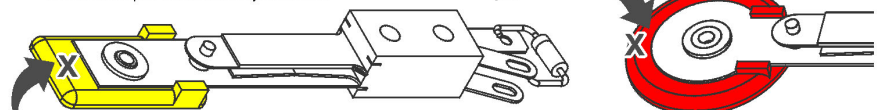
REAR VIEWS OF ANTI-LOFT TARGET & SWITCH ASSEMBLIES

The material of the Anti-Loft Switch has been extended higher to be used with the Anti-Loft Switch Back Plate. **IMPORTANT:** Switch & Target Assemblies (X) without the extension (the predecessors) **SHOULD NOT** be used with an Anti-Loft Switch Back Plate (shown left).

APPENDIX REFERENCE FOR PINBALL GAMES WHICH USED THE BELOW SWITCH & TARGET ASSEMBLIES NOTE:

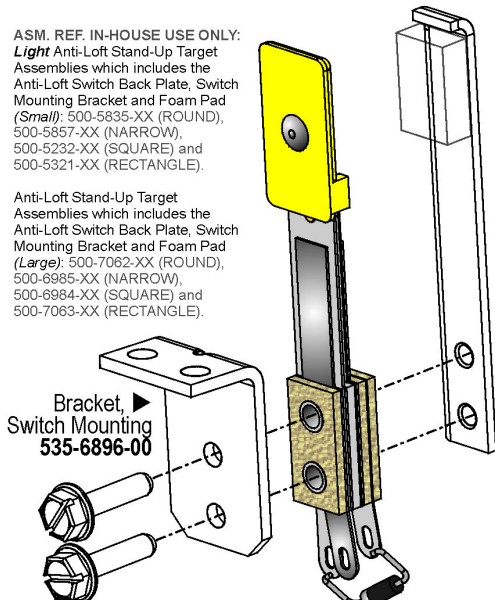
The Switch & Target Assemblies (X) without the extension have the following part numbers*: 515-5966-XX (Round), 515-5967-XX (Narrow), 515-5162-XX (Square) and 515-6027-XX (Rectangle) and should only be used with the Switch Back Plate (shown right), 535-6452-00 and Small Foam Pad, 626-5029-00.

* If the above referenced part numbers are no longer available from the factory or your distributor, it will be substituted with the appropriate Anti-Loft counterpart. Not all colors may be available.



ASM. REF. IN-HOUSE USE ONLY:
Light Anti-Loft Stand-Up Target
Assemblies which includes the
Anti-Loft Switch Back Plate, Switch
Mounting Bracket and Foam Pad
(Small): 500-5835-XX (ROUND),
500-5857-XX (NARROW),
500-5232-XX (SQUARE) and
500-5321-XX (RECTANGLE).

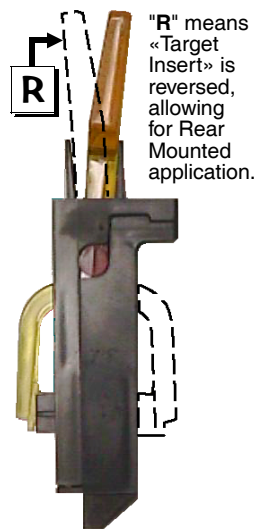
Anti-Loft Stand-Up Target
Assemblies which includes the
Anti-Loft Switch Back Plate, Switch
Mounting Bracket and Foam Pad
(Large): 500-7062-XX (ROUND),
500-6985-XX (NARROW),
500-6984-XX (SQUARE) and
500-7063-XX (RECTANGLE).



▲ #6-32 X 5/8" Slotted HWH Swage (Zinc)
Screws (Qty. 2/per) **237-5976-04**

APPENDIX I

Modular Stand-Up Targets



Take Note:

- Items A-E come in various colors. These targets may not be available in every color. The "-XX" in should be replaced with the desired 2-Digit number for the color desired as described in the Color Chart below. As of print date, the following colors were used :
-01 Clear (A, D); -02 Red (A, B, C, D, E); -03 Amber (D, E);
-04 Green (A, B); -05 Blue (C); -06 Yellow (A, C),
-09 Purple (B, D); -11 Fluorescent Green (A, B, D)
2. For location(s) and type of Stand-Up Targets used, if any, see Section 4, Chapter 1, Parts Identification & Location.

-XX REPLACE WITH 2-DIGIT FOR COLOR:

- 00 Black
 - 01 Clear
 - 02 Red
 - 03 Amber
 - 04 Green
 - 05 Blue
 - 06 Yellow
 - 07 Orange
 - 08 White
 - 09 Purple
 - 10 Fluor. Orange
 - 11 Fluor. Green
 - 12 Fluor. Blue
 - 13 Teal Green
 - 14 Gray
 - 15 Luminescent
 - 16 Gold
- Note: Not all colors available.

Nr.	STAND-UP TARGET PARTS	SPI PART Nr.
A	Modular Stand-Up Target Narrow Assembly	500-6138-XX
	Stand-Up Target Narrow (Insert)	545-6138-XX
B	Modular Stand-Up Target Square Assembly	500-6139-XX
	Stand-Up Target Square (Insert)	545-6139-XX
C	Modular Stand-Up Target Rectangle Asm.	500-6228-XX
	Stand-Up Target Rectangle (Insert)	545-6228-XX
D	Modular Stand-Up Target Round Assembly	500-6075-XX
	Stand-Up Target Round (Insert)	545-6075-XX
E	Modular Stand-Up Target 1" Spherical Asm.	500-6189-XX
	Stand-Up Target 1" Spherical (Insert)	545-6189-XX

To Replace the « Target Insert » or change Target Orientation :

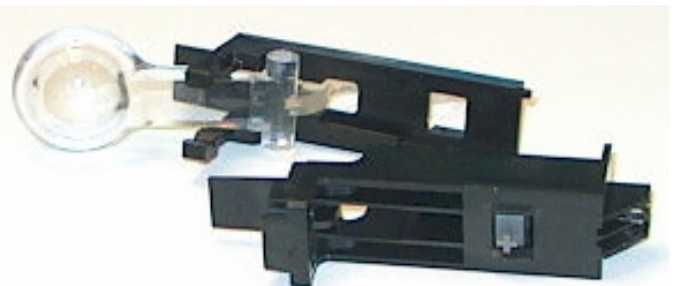
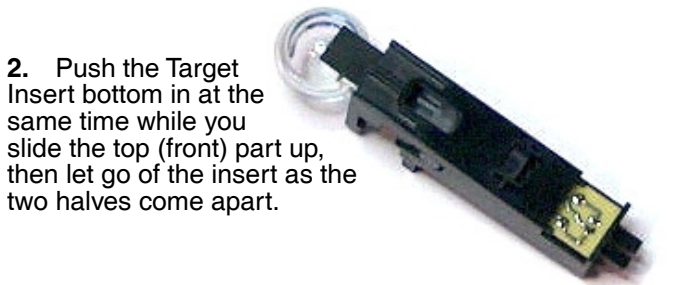
Items A-E Note: For the Target Assembly use the "500-" SPI Part Number(s) shown in the Parts Table below. To receive the Target Assembly with the « Target Insert » « Reversed » simply add a "R" at the end of the Part Number. See Side View picture left to compare (dashed line shows target reversed). For just the «Target Insert» use the "545-" SPI Part Number.



To reverse it yourself or to just change the insert:

- With a small flat head screwdriver, push into the small tab at the bottom of the target front and give a slight twist motion to "pop" the two halves.

- Push the Target Insert bottom in at the same time while you slide the top (front) part up, then let go of the insert as the two halves come apart.



- Replace target or reinsert it into the other size while sliding the two halves back together.

Note: If you were reversing the orientation, don't forget to also turn the Switch Actuator PCB 180°. Test Switch.

APPENDIX J



Coin Cards for USA & International (Euro & Non-Euro) Pricing Defaults

If more than one Pricing Scheme is available for countries listed, the asterisk listed beside the option, denotes the Factory Default Setting.

VISIT OUR WEBSITE TO DOWNLOAD ALL THE LATEST COIN CARDS (INCLUDING COIN CARDS FOR OLDER GAMES).

USA 10*(Canada Custom) 755-5400-11-Y	USA 5 (Canada Custom) 755-5400-08-Y	USA & Canada Custom 755-5400-04-Y	USA 3, 4 or 5 (Can. Cust.) 755-5400-03-Y	Canada 2*(USA Custom) 755-5400-10-Y	Canada 1 (USA 2 or 8) 755-5400-09-Y
Custom All Countries 755-5400-06-Y	Australia 1* & 2 755-5406-00-Y	Croatia 755-5410-00-Y	Czech Republic 755-5415-00-Y	Denmark 1* & 2 755-5402-00-Y	Hong Kong 755-5414-00-Y
Japan 1 & 2* 755-5408-01-Y	Lithuania 755-5416-00-Y	Middle East 755-5400-06-Y	New Zealand 1* & 2 755-5406-00-Y	Norway 1* & 2 755-5403-01-Y	Norway 1* & Custom 755-5403-02-Y
Norway 3 & 4 755-5403-03-Y	Norway 2 755-5403-00-Y	Romania 755-5417-00-Y	Russia 755-5411-00-Y	South Africa 1* & Custom 755-5409-01-Y	Sweden 1* & 2 755-5404-00-Y
Switzerland 1* & 2 755-5405-00-Y	Taiwan, R.O.C. 755-5412-00-Y	Turkey 755-5413-00-Y	United Kingdom 5* 755-5407-01-Y	United Kingdom 1 & 3 755-5407-00-Y	United Kingdom Custom 755-5407-02-Y
EURO 1 755-5401-01-Y	EURO 2 755-5401-02-Y	EURO 3 755-5401-03-Y	EURO 4 755-5401-04-Y	EURO 5 755-5401-05-Y	EURO 6 755-5401-06-Y
EURO 7 755-5401-07-Y	EURO 8 755-5401-08-Y	EURO 9 755-5401-09-Y	EURO 10 755-5401-10-Y	EURO 11 755-5401-11-Y	EURO 12 755-5401-12-Y

Section 3, Chapter 4, GO TO ADJUSTMENTS MENU, Adj. 18, Game Pricing, USA & International (non-Euro) and Euro 1-12 Summary & International (Euro) Standard Pricing Select Tables, summarizes Standard or Custom Pricing Schemes & the Dip Switch Setting required.

Download all Coin Cards from our website:
<http://www.sternpinball.com/coinagecards.shtml>

Appendix J:

1

or order SPI Part No.: 970-2007-00 (970-2002-00 thru 970-2006-0) CD-Rom through your Local Distributor.

Coin Cards (USA & Intn'l Pricing Defaults)